between 2 and 4 inches can be used. As a result, installation of the nylon cut-off attachment is less expensive than on the old 8-ounce machine.

The die space has been made completely accessible for clamping the molds. Like other Lester machines, the safety gate provides positive protection to the operator against recycling. The injection pressure is 20,000 pounds per square inch. Improvements in the internally heated cylinder of the new machine are said to have made it practiclally indestructible. Besides increasing the plasticizing capacity, special attention has been given to plasticizing cellulose material. 71

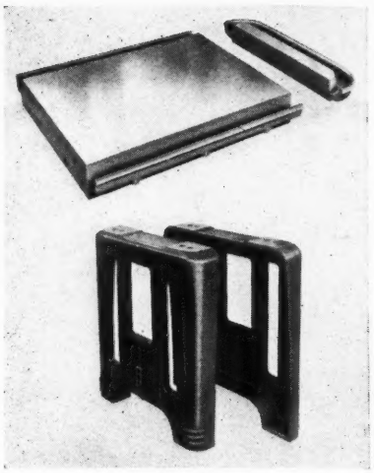
Crane High-Temperature, Mechanical Seal with "Teflon" Sealing Member

A new mechanical shaft seal, designated Type 9, has been brought out by the Crane Packing Co., Chicago, Ill. This seal was especially developed for use under severe temperature and corrosive conditions. It has a flexible wedge-ring molded from "Teflon," which is said to combine the chemically inert properties of this material with the positive sealing components to insure effective mechanical sealing, even at temperatures up to 500 degrees F. The new seal is adapted for service on various rotating shaft applications, such as centrifugal pumps, turbines, and positive-displacement pumps.

The construction of the seal is shown in the accompanying cutaway view. The set-screw fastened metal retainer *A* provides a positive drive from the shaft to the carbon-sealing washer *B* through dents *C*, which fit into notches in the washer. An effective seal between the shaft and washer is insured by the precision-machined Teflon wedge-ring *D*, which is preloaded by the action of multiple springs *E*. Spring pressure is uniformly distributed by a metal disc *F*. The lapped raised face of the rotating sealing washer *B* fits against the highly lapped face of the stationary seat *G* to provide a positive leakproof seal with minimum running friction between the vertical faces. Spring pressure keeps the faces in constant contact, providing automatic adjustment for wear and shaft end play. 72

Delta Sectional Tables for Multiple-Spindle Drill Presses

Low-cost, rigid, sectional tables for setting up special-purpose machines or multiple-spindle drill presses to suit a specific job are made by the Delta Power Tool Division, Rockwell Mfg. Co., Milwaukee, Wis. Each table section is 23 3/8 inches wide by 30 inches long, and by the addition of the end sections, can be increased to 35 inches long. With these sections, a table of any desired length can be built up. An adequate drain trough for carrying off coolant on wet cutting operations is provided. Each end section has a 3/4-inch pipe tap for connection to the coolant system. Cast-iron legs as shown in the lower view of the illustration are available for mounting the table sections.

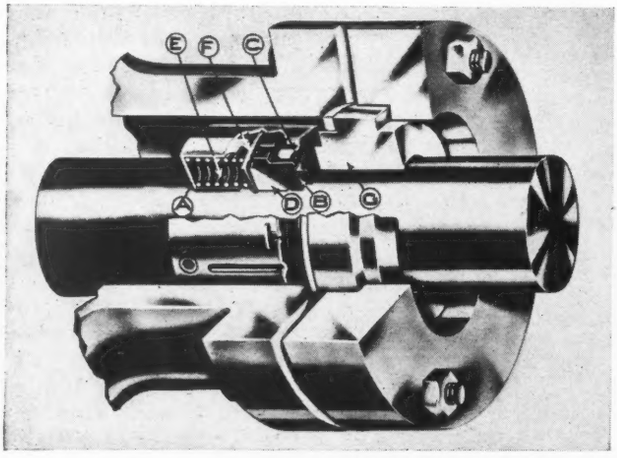


Delta table, end section, and cast-iron legs designed to be assembled into single- or multiple-table units for special-purpose machines

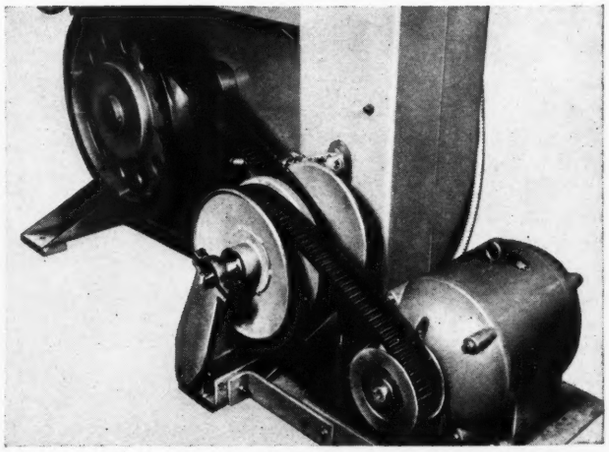
Any type Delta 17-inch or 14-inch drill press head can be installed on the table sections with the spacing necessary to meet individual requirements. Either size head or a combination of both can be used, providing maximum flexibility. 73

Improved "Speedmaster" Variable-Speed Drive

The DoAll Co., Des Plaines, Ill., has announced the development of standardized variable-speed drive assembly units for its "Zephyr" line of 36-inch throat band-sawing machines. These units are built to insure maximum efficiency and smoothness of power transmission in the optional band speed ranges available, using motors of different speeds.



High-temperature, corrosion-resistant mechanical shaft seal developed by the Crane Packing Co.



"Speedmaster" variable-speed drive developed for use on "Zephyr" line of DoAll band-sawing machines

To obtain additional information on equipment described here, use Inquiry Card on page 229.

The new "Speedmaster" unit has a 15 1/2-inch variable-speed pulley of durable cast-iron construction. The unit is precision machined and balanced to minimize vibration. It permits varying the speed while the machine is running in order to obtain the maximum cutting speed for the type and thickness of material being sawed. Simplicity of construction—only two rotating parts—makes the unit practically trouble-free.

The twin-pulley, floating center sheave "Speedmaster" is mounted on a bracket installed between the motor and the driven unit. These units are available in various sizes covering a power range of from 1/6 to 15 H.P. 74

Rotary Surface Grinder with Automatic Clamping Fixtures

The Mattison Machine Works, Rockford, Ill., has just completed a specialy equipped, No. 72 four-spindle Mattison Hanchett type rotary surface grinder for finishing the bodies and covers of automotive oil-pumps. The work-pieces are held in automatically operated clamping fixtures, which are shown in the accompanying close-up view.

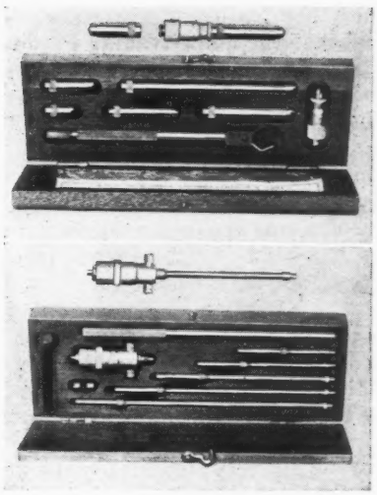
A safety device is provided which stops the table in case the work is not located properly in the fixture. Automatic sizers are constantly in operation, checking the work and keeping all of the pieces within the specified tolerances without the operator's attention. 75

Unionmelt Portable Manual Welder

A portable semi-automatic machine for Unionmelt welding of short seams has been announced by the Linde Air Products Company, Division of Union Carbide and Carbon Corporation, New York City. This new welding machine, designated UWM-1, is applicable to work which cannot be welded conveniently with fully automatic machines. It is also useful in small shops which have no automatic welding machines, yet have occasional need for the labor-saving and other advantages of Unionmelt welding.

The welding head, voltage control box, and a 75-pound capacity spoke type rod reel are all mounted on a small steel chassis, which is equipped with casters and a lifting eye. A 17-foot flexible hose connects the hand unit to the welding head. The hand unit has a hopper which holds 3 pounds of granular welding composition.

Easy operation and low maintenance costs are said to be obtained with this welder because of its low-voltage rod-feed motor and the series type motor voltage control, both of which have few parts and require a minimum of adjustment. The control automatically maintains constant welding voltage even though the operator does not hold the hand unit at a uniform distance from the work. The welding operation starts when the rod is scratched on the work-piece, and stops when the rod is lifted away. Alternating and direct-current welding can be performed with this equipment. 76

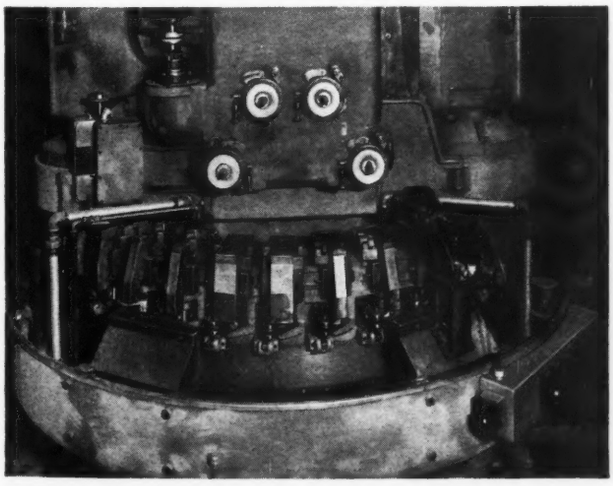


(Upper View) Tubular-rod inside micrometer set made by L. S. Starrett Co. (Lower View) Starrett solid-rod inside micrometer set

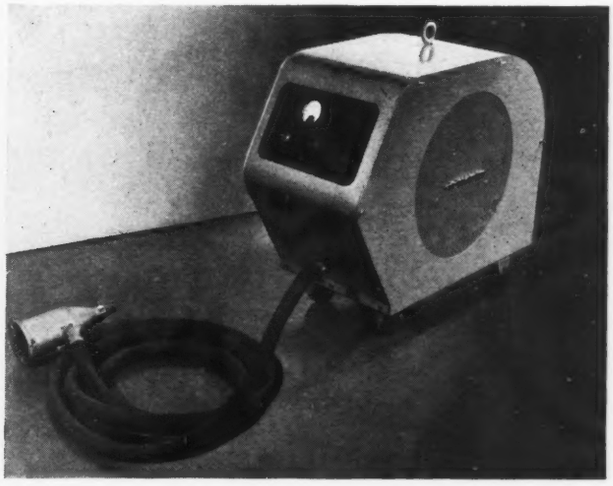
New Starrett Inside Micrometers

Two new inside micrometers now being made by the L. S. Starrett Co., Athol, Mass., provide a choice between the slim, solid-rod type and the larger diameter, lightweight tubular-rod type. These micrometers are designed for precision internal measuring of cylinders and rings, setting calipers, and comparing gages.

Both types of micrometers have a satin chrome finish, which makes the micrometer markings stand out sharp and clear in any illumination. This improved finish on the head not only eliminates glare, but contributes to faster, more accurate readings and superior corrosion resistance.



Mattison Hanchett type rotary surface grinder equipped for finishing oil-pump bodies and covers



Unionmelt portable semi-automatic hand welder placed on the market by the Linde Air Products Company

To obtain additional information on equipment described here, use Inquiry Card on page 229.

Another feature of these micrometers is the quick-reading graduations in thousandths of an inch with all thousandth lines numbered for fast, error-proof reading. The micrometer screws are made with threads hardened and ground from the solid.

The No. 124 inside micrometers with solid 5/32-inch diameter rods, shown in the lower view of the illustration, are available in four different models covering a range of from 2 to 32 inches. These sets have micrometer heads with movements of 1/2 and 1 inch. In use, any desired length can be established approximately by attaching one of the rods to the micrometer head, using a spacing gage when necessary to bring the measurement within the range of the micrometer screw.

The No. 823 inside micrometers, shown in upper view, are available in two ranges—1 1/2 to 8 inches and 1 1/2 to 12 inches. An outstanding feature is the 3/8-inch diameter rods made of steel tubing, centerless ground, and light in weight yet extremely rigid. The minimum measuring capacity of 1 1/2 inches permits use in small cylinders and limited areas. Rods may be attached to either or both ends of the micrometer head, as preferred. 77

Heavy-Duty Hydraulic Feed Table for DoAll Machines

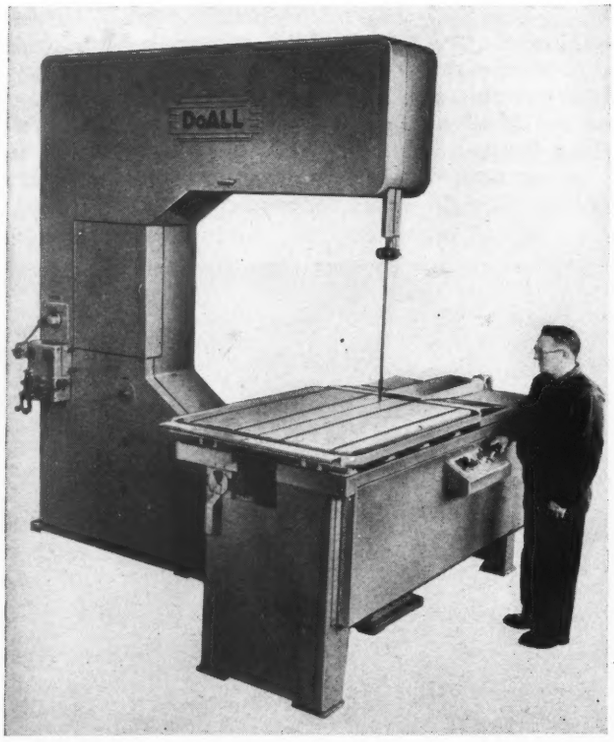
The DoAll Co., Des Plaines, Ill., has announced that the hydraulic feed table originally developed for their HP-36 Zephyr variable-speed band-sawing machine is now available as an accessory table that can be applied to any standard DoAll machine. This table adapts the machine for easy, accurate, vertical, straight-line band-sawing of exceptionally bulky or heavy work-pieces, such as large die-blocks, castings, or forgings. It is a great convenience for production sawing, cut-off work, and for slicing intricate ferrous or non-ferrous castings for inspection, since the work-piece, as cut, has a smooth precision finish which is often suitable for making porosity tests.

The illustration shows a Model V60 band-sawing machine with a 60-inch throat and 40-inch work height capacity equipped with the new feed table. The 40- by 48-inch table on a carriage bed 87 by 36 inches will support a load of 3000 pounds. The bed can be connected to the machine frame and is supported by fabricated steel legs with leveling screws. It requires a floor space 126 by 40 1/2 inches, and weighs 3000 pounds. The table surface is 45 3/4 inches from the floor. Four T-slots are provided for fastening work.

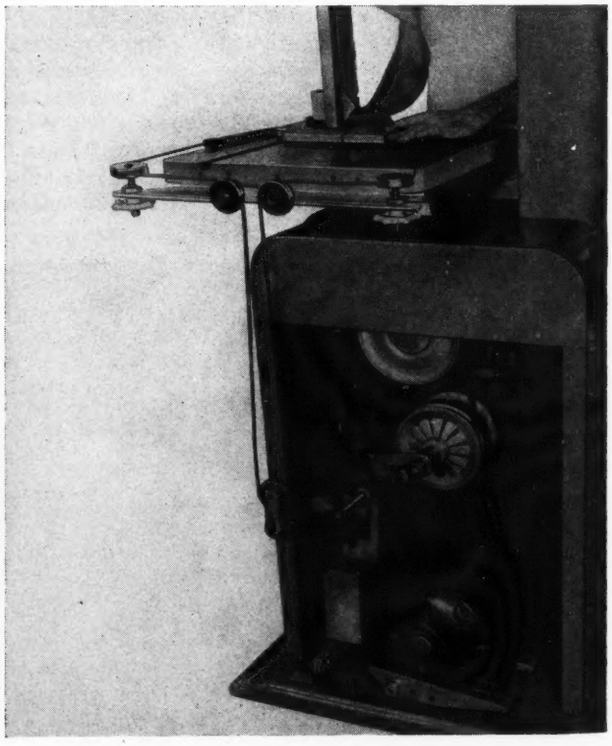
The hydraulic system consists of a 5-gallon reservoir, with a filler opening and clean-out plate, and a 2-gallon per minute gear type hydraulic pump driven by a 3/4-H.P. motor. The circuit has an adjustable relief valve to limit working pressure to approximately 200 pounds per square inch. Controls for governing the rate of table feed up to 18 feet per minute and the reversing traverse rate of 36 feet per minute are located on a panel on the carriage bed. 78

Automatic Power Feed for DoAll Light-Duty Band-Sawing Machine

The same type of automatic power feed supplied as standard equipment on the heavy-duty, precision tool-room band-sawing machines manufactured by the DoAll Co., Des Plaines, Ill., is now furnished as an optional feature of this company's light-duty 16-inch throat machines. The power feed is obtained by means of a weight-actuated mechanism consisting of



DoAll band-sawing machine equipped with heavy-duty hydraulic feed table



Automatic power feed applied to light-duty DoAll band-sawing machine

To obtain additional information on equipment described here, use Inquiry Card on page 229.

a beam arm, a weight which is adjustable on the beam by means of a handwheel to obtain a variable feed pressure, and a pedal-controlled quick release or weight reset. A chain placed around the work-piece is connected to the weight feed, which exerts the feed pressure. All the operator has to do is guide the work so that the band follows the lay-out lines.

By adjusting the power feed pressure to suit the band speed, type and thickness of material being cut, and the width, pitch, and set of the saw band being used, the operator can obtain the best cutting rate, finish, or band life, or the most suitable compromise of these variables.

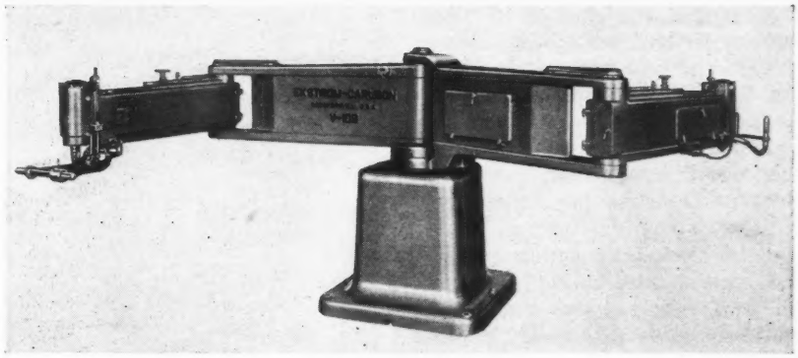
An important advantage of this type of power feed is that the feed pressure can be varied while the machine is in operation by simply turning a handwheel. 79

Radial Arm "Routerdrils" for Use in Aircraft Production

With the renewal of military aircraft production, Ekstrom, Carlson & Co., Rockford, Ill., are again building their radial arm "Routerdrils" for working on plywood, plastic, or non-ferrous metals. These machines are available in five standard types in each of two sizes (V-84 and V-109), as follows: Type C-2 combination radial arm "Routerdril," fitted with one router head and one drill head; Type R-2 double radial arm router, employing two router heads; Type D-2 double radial arm drill, equipped with two drill heads; Type R-1 single radial arm router, with only one router head; and Type D-1 single radial arm drill, with one drill head.

The No. V-109 has a radial reach of 109 inches and will cover all points of two 4- by 12-foot work-tables set up 180 degrees apart, one on each side of the machine, upon which sheets stacked to a total thickness of 3/4 inch can be routed or drilled simultaneously. Similarly, the No. V-84, with a radial reach of 84 inches, will take care of work within the dimensions of a 4- by 6-foot work-table. All models have a full 360-degree swing around the turret mounting post.

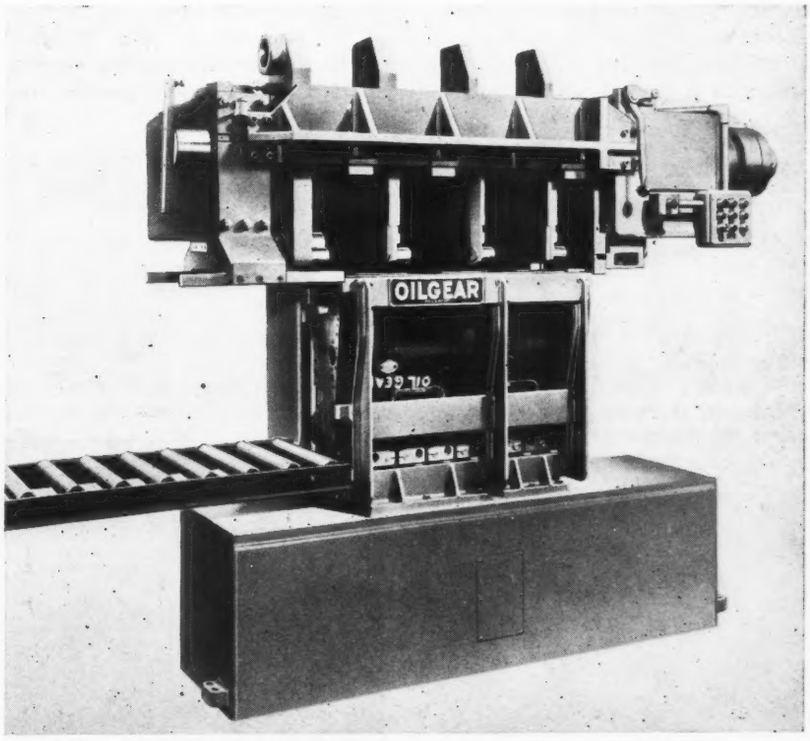
The 5-H.P. router-head spindle rotates at a speed of 15,000 R.P.M., while the dual-speed drill-head motor provides spindle speeds of 7500 and 15,000 R.P.M. at 1 and 1/2 H.P., respectively. Both motors are of the high-frequency, totally enclosed, fan-cooled type, and are equipped with precision ball bearings. They are statically and dynamically balanced to insure smooth cutting and vibrationless operation. 80



Radial arm "Routerdril" built by Ekstrom, Carlson & Co.

Oilgear Press for Assembling Camshaft Bushings in Cylinder Blocks

Either three or four different sizes of camshaft bushings are assembled in four- or six-cylinder Diesel-engine blocks weighing up to 950 pounds in one operation on a new dual-purpose press announced by the Oilgear Co., Milwaukee, Wis. This semi-automatic, interlocked press, designed to receive work at conveyor height, has electric-hydraulic control and alternative manual push-button control; variable pressing and return speeds; hydraulic elevator; positive block location; and dual-purpose horn to accommodate either three or four bushings. The operator's work consists merely of slipping split bushings on pins and keeper rings on the bushings,



Oilgear special 15-ton camshaft bushing assembling press with engine block in loading position

and guiding the block to the assembly position.

With the selector switch set at the "Auto" position, semi-automatic operation is started by depressing dual safety push-buttons. The elevator will not raise the block nor operate the main rams until the bushings are in place and the block is in approximately the correct assembling position. The hydraulic elevator then automatically raises the block, locates the pan rail surface over the dowel-pins, and holds the block in the assembling position.

The main ram then pulls the bushings into the block a pre-set distance. The resulting pressure reverses the cycle, causing the main ram to be returned, after which the lower elevator is returned to the unloading position. The block is then pushed onto the conveyor and another block is moved into the press. 81

Vonnegut Brush-Backed Polishing Head

A new brush-backed polishing head has been developed by the Vonnegut Moulder Corporation, Indianapolis, Ind. This head consists of two principal parts—an outer shell or drum, holding sixteen replaceable brushes, and a center spool on which are coiled sixteen strips of abrasive cloth. In operation, the brush bristles force the abrasive tips into depressions and also allow them to

Brush-backed polishing head developed by the Vonnegut Moulder Corporation

ride over projections of the workpiece surfaces. This ability to follow irregular contours instead of reshaping them, makes the head ideal for finishing operations on all classes of shaped surfaces.

Since an entirely different set of results may be obtained with the same head by simply changing the grade and grit of abrasive strips used, it has a wide range of applications. Some of the more common uses are polishing out die marks on formed metal parts; smoothing die castings; removing burrs and polishing surfaces of dies and molds; removing burrs from perforated stampings and fabricated wire products; wiping out discoloration and scratch marks from ground weld beads; as well as performing sanding operations on wood, plastics, and other materials.

This polishing head is made in 2- and 4-inch widths. The 4-inch head weighs less than 6 pounds when fully loaded and the 2-inch head weighs less than 4 pounds with a full load of abrasive. These units are designed for use with portable power hand tools or on a flexible shaft. Each of the sixteen strips of abrasive is about 18 inches long, allowing for storage of about 24 lineal feet of coated abrasive. 82

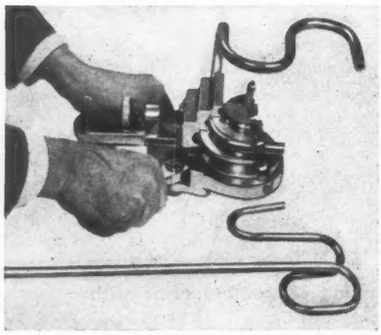
Low-Inertia Bench Welding Head

The Federal Tool Engineering Co., Newark, N. J., has placed on the market a complete line of low-inertia bench welding heads with a "Tweezer-Weld" action, designed to automatically apply the correct amount of follow-through welding pressure instantaneously. This action has previously been successfully applied to automatic welders operating at speeds as high as 3600 welds per hour on small parts.

Low inertia is obtained by the elimination of coil springs from the pressure system and the prevention of all movement in the pressure system at the time the welding current is applied. Pressure between the electrodes can be adjusted from approximately 6 ounces to 15 pounds. The pressure system is cam-actuated. 83

Tal 3-in-1 Hand-Operated Bender

Hand-operated bender brought out by Tal Bender, Inc., Milwaukee, Wis. Known as the "3 in 1," it is capable of making offsets and bends up to 180 degrees in 3/8-, 1/2-, and 5/8-inch outside diameter copper tubing, as well as in brass, steel and other light-gage tubing. It is made from a special strong light-weight metal. 84

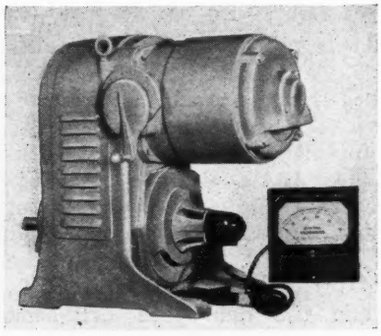


Lens Cleaning Tissue and Dispenser

New, large size, silicone-treated lens tissue and compact dispenser announced by American Optical Co., Safety Products Division, Southbridge, Mass. Designed for use in keeping safety goggles clear, clean, and polished. The tissues deposit an invisible protective coating of silicone on the lenses. 85

Electric Tachometer for "Varidrive" Motors

Electric tachometer arrangement for motor applications that require continuous and accurate speed indication, brought out by U. S. Electrical Motors, Inc., Los Angeles, Calif. "Varidrive" motors made by this company are now available with Model R-1 tachometer and generator in ratings from 1/4 to 50 H.P., with speeds from 2 to 10,000

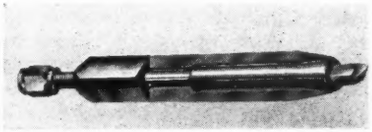


To obtain additional information on equipment described here, use Inquiry Card on page 229.

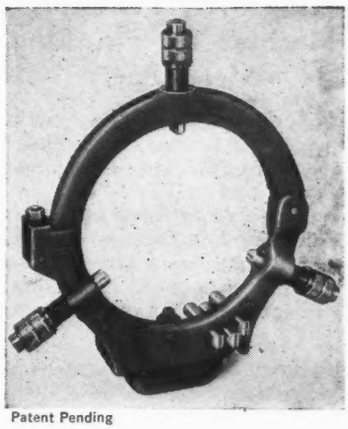
R.P.M. The permanently lubricated, ball-bearing type generator is coupled to the "Varidrive," no other source of power being required. The tachometer indicator is entirely enclosed, and can be mounted at distances up to 300 feet from the "Varidrive" without affecting the accuracy. Indicator dial shows operating speed as a percentage of maximum speed, thus making the rate of production of a given machine instantly available. Other forms of dial indication are also available. 86

"Bar-Mor" Collet Tool-Holder

Collet type tool-holder, designated the "Bar - Mor," brought out by Montgomery & Co., Inc., New York City.



This tool-holder holds square and round tool bits, twist drills, reamers, and countersinks. When the collet is drawn into the holder, it is gripped on all sides and maintains its position under exacting conditions, because the taper on the collet head matches the internal taper at the front of the holder. Adapted for turning, facing, boring, and thread cutting. 87



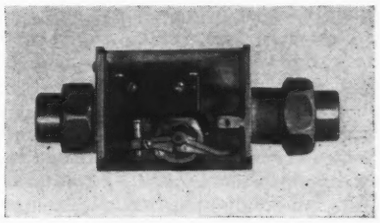
Patent Pending

Steadyrest for Large-Diameter Work

New steadyrest for mounting extra large work in lathe, announced by the South Bend Lathe Works, South Bend, Ind. Available for 16-inch and 16- to 24-inch South Bend lathes, and takes work between 4 3/4 and 10 3/4 inches in diameter. Especially suited for use in machining pipe, pump, and engine cylinders, and similar large-diameter work that is not excessively heavy. Each jaw is moved in or out by turning a knurled knob, and is locked in the required position by a thumb-screw. A double-acting compound screw thread provides approximately 3/16 inch of jaw movement for each revolution of the adjusting knob. The steadyrest top is hinged for easy mounting and removing of the work. The brass jaws move in precision steel sleeves, pressed into the supporting frame. 88

G-E Improved Flow Interlock

Improved flow-interlock device which responds to a flow of water to open or close an electrical contact, announced by General Electric Co., Schenectady, N. Y. Finer control, union fittings at both ends, bronze piston, reduced size and weight, simpler adjustment, and more wiring space are improvements incorporated in the new device. In operation, the device closes a contact when the flow of water exceeds a preset amount, and opens it when the flow falls below the preset amount. Only one screw adjustment is needed to set the circuit for any flow from one-half gallon to four gallons per minute. Electrical rating of the new flow interlock is 10 amperes at 120 or 240 volts



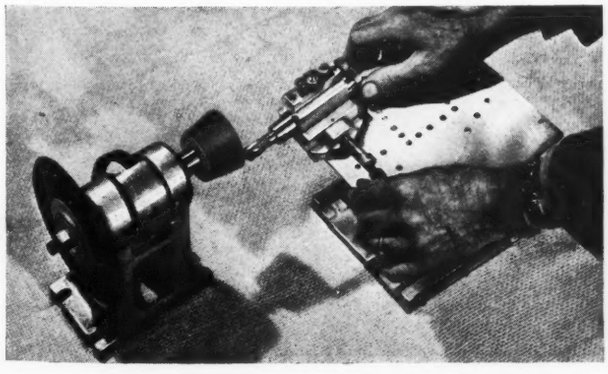
alternating current. Maximum line pressure that the device will withstand is 125 pounds per square inch. 89

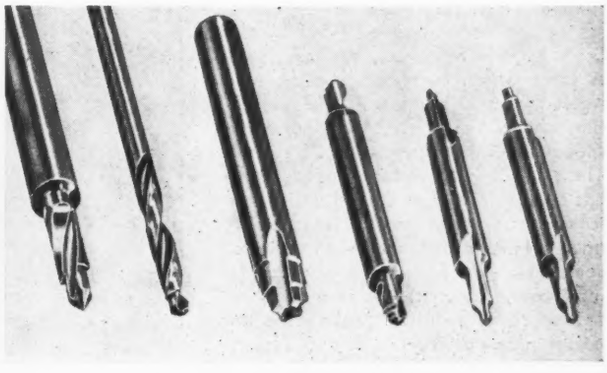
Treyco Tool Sharpening Attachment

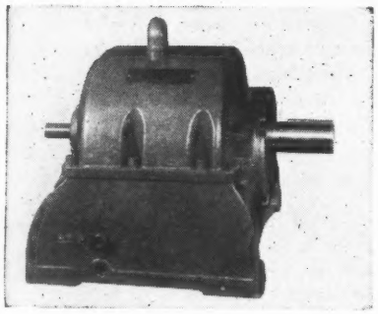
Tool sharpening attachment announced by Treyco Products, Kenmore, N. Y., for use with the sharpening fixture made by this company. The new attachment is designed to provide easier, faster, and more precise sharpening of end-milling, countersinking, spot-facing, reaming, metal routing, wood routing, and similar tools, including carbide-tipped tools. The simplicity of design eliminates bulkiness and permits easier handling and adjusting, thus assuring more accurate tool sharpening. Included with each attachment are 3/16-, 1/4-, 3/8-, and 1/2-inch sleeves or adapters for interchanging tools with shanks of different diameters. An index sleeve for No. 2 Morse taper is also available. Adjustable feed, together with six- and eight-point internal indexes, is a feature which provides control of tools during the entire sharpening operation. 90

Counterbores and Step Drills

High-precision small-size counterbores and step drills available through Woodruff & Stokes Co., Inc., Hingham, Mass. Made of carbon or high-speed steel and special steel alloys. One of these specially designed spiral-fluted double-end step drills is used to perform three operations on electric meters at one machining station. This centering, drilling, and countersinking tool is ground from hardened high-speed steel and costs just one-half the price of the three single tools it replaced. Its use resulted in greatly increased production. These tools have tolerances of 0.0002 inch on the diameter and are concentric within 0.0003 inch. They are made with straight and angle shoulders, cutting and non-cutting pilots, in single- and double-end types, with two to five cutting diameters and with straight and spiral flutes for a wide variety of precision work. 91





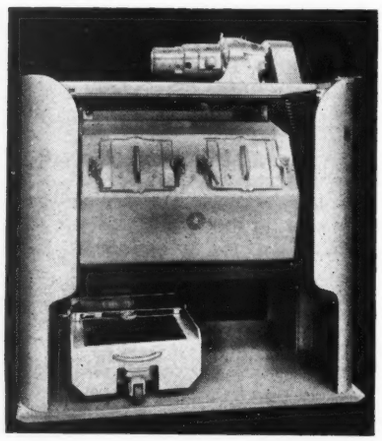


Westinghouse Double-Reduction Speed Reducers

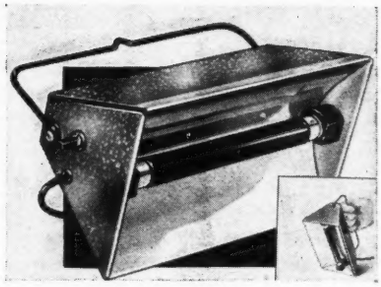
One of new line of Type DB double-reduction speed reducers, in ratings from 1 to 100 H.P., made by Westinghouse Electric Corporation, Pittsburgh, Pa. These speed reducers are designed for applications on small- to medium-size drives where the prime mover is coupled or belted to the gear unit. They have all-external type helical gearing, arranged in a horizontal plane. When coupled to an electric motor, a straight-line drive results. Eight unit sizes are available; twelve standard gear ratios range from 6.25 to 1 to 58.3 to 1. Features include accurately hobbed single-helical gearing; split-construction cast-iron case designed for accessibility; simple, positive splash lubrication; and anti-friction bearings. Efficiencies average 96 per cent. 92

Improved Tumbling Machine for Finishing Metal Parts

Recently improved tumbling machine manufactured by the Crown Rheostat & Supply Co., Chicago, Ill., for finishing metal parts. Crown "buffer strip lining" is used in these machines to make quick replacements possible. Semi-soft rubber linings are also available. A variable-speed drive gives a wide range of speeds for handling steel,

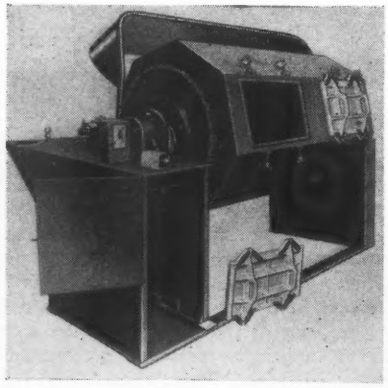


die-cast, or other metal parts. An automatic timer control assures a definite operating time. 94



"Blak-Ray" Ultra-Violet Lamp for Inspection Applications

One of a new line of "Blak-Ray" high-intensity long-wave ultra-violet lamps for use in industrial inspection and laboratory analyses. The invisible "black-light" rays, when directed at certain substances, cause a phenomenon known as fluorescence whereby they appear to change to a different color. This makes the lamps useful for inspection, sorting, and analysis, as the differences in fluorescent coloring are almost a sure indication of a variation in the composition and other qualities of two or more substances. Available in 4-, 8-, 15-, 30-, 40-, and 80-watt sizes from Ultra-Violet Products, Inc., South Pasadena, Calif. These models can be used as portable inspection lights as they weigh only 1 3/4 pounds. 95



"Murco" Tumbling Barrel

New "Murco" tumbling barrel of compact design with both motor and operating mechanism totally enclosed. This tumbling barrel is made in both constant- and variable-speed types by the D. J. Murray Mfg. Co., Wausau, Wis. A limit switch permits operation only when the hood is closed. The illustration shows the 7 1/2-H.P. constant-speed model that operates at 25 R.P.M. The 7 1/2-H.P. variable-speed model has speeds from 8 to 25 R.P.M. These tumbling barrels are also made in 5-H.P. and 3-H.P. constant- and variable-speed models. Speed changes can be made while the barrel is in motion. A foot-operated hydraulic brake stops the barrel in any position. 93

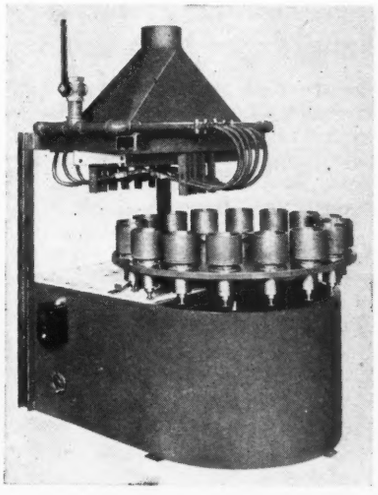
Tonnage Indicator for Forging Press

Tonnage indicator applied to "Maxipres" with dial in convenient position to show "squeeze" pressure in tons exerted by press. Permits forging work to closer tolerances without danger of overload; easier selection of the proper size press for a given job; and faster die set-up. This indicator gives quicker warning of low heats, improper die set-up, or incorrect die impressions. Developed by the National Machinery Co., Tiffin, Ohio. 96

To obtain additional information on equipment described here, use Inquiry Card on page 229.

Small Air-Operated Heavy-Duty Drill

New heavy-duty small air-operated drill added to the line of the Cleco Division, Reed Roller Bit Co., Houston, Tex. This drill has features normally found on larger drills, such as stub-tooth gear train for sturdiness and long life; built-in lubricator; sealed spindle bearing; and a safety chuck guard. Designed to meet the need for a more powerful, longer life drill that is easy to handle in close quarters. The over-all length of this drill is 5 3/4 inches, and distance from side to center of spindle is only 13/16 inch. 97

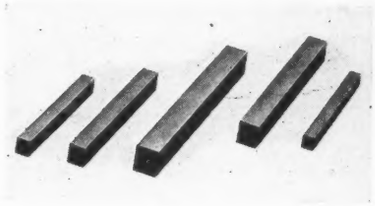


High-Speed Heating Unit for Brazing or Annealing Shells

Gas-fired production heating machine introduced by Gas Appliance Service, Inc., Chicago, Ill. This high-speed heating unit is suitable for two types of operations—the brazing of plugs or adapters into ends of shell type units, and the annealing of mouths of shell cartridges. The heating zone consists of two rows of high-speed zig-zag burners, designed to bring the sections to be brazed or annealed to the proper temperature in a minimum time. Cups that hold the work are provided with spindles which rotate while passing through the heating zone. A production rate of 600 pieces per hour is claimed for a 60-inch diameter unit. 98

Gorham Tool Bits

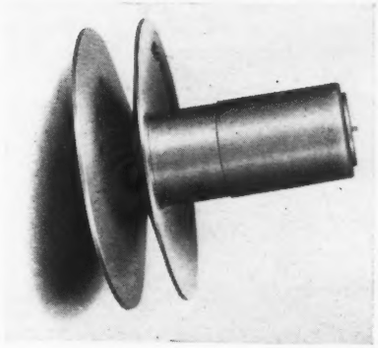
Tool bits of three distinct materials developed to meet various metal-working applications by the Gorham Tool Co., Detroit, Mich. The materials are "Gorham Standard," for the commercial field; M-40-B, a "super moly" grade for heavy-duty turning; and "Gormet,"



for turning soft or abrasive stock at high speeds. Ground cut-off blades in seventeen stock sizes are also available in the "Standard" material. 99

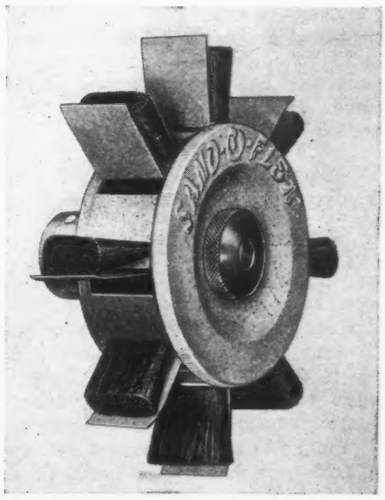
Huppert Combination Hardening and Tempering Furnace

Combination hardening and tempering furnace with an "Infitrol" and electronic controller designed to provide automatic control of temperatures ranging from 300 up to and including 2200 degrees F. without additional controls. Since this includes temperatures below the standard range, the new furnace can also be used in the oven temperature range for tempering. This No. 869 furnace is 8 inches wide by 6 inches high by 9 inches deep, and has a maximum current consumption of 4 kilowatts. It is wired for 220-volt, single-phase operation. Made by K. H. Huppert Co., Chicago, Ill. 100



"Roto-Cone" Variable-Speed Pulley

Infinitely variable speed changes in the 15-H.P. range are provided by this new 3 to 1 ratio "Roto-Cone" variable-pitch pulley, brought out by the Gerbing Mfg. Corporation, Northbrook, Ill. This pulley is dynamically and statically balanced, and uses a standard vari-speed rubber V-belt. The Gerbing "Roto-Cone" rack and gear arrangement positively controls the sheave movement and assures accurate belt alignment throughout the entire speed range, resulting in longer belt life and a smooth vibrationless drive. 101

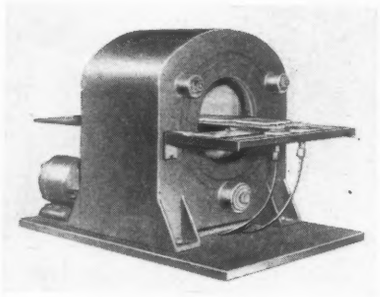


Portable "Sand-O-Flex" Sanding Wheel

Improved "Sand-O-Flex" sanding wheel made by Merit Products, Inc., Culver City, Calif. This is a brush-backed sanding device that can be attached to any rotating shaft for sanding and finishing curved and contoured surfaces. It is particularly recommended for use on portable electric drills and flexible shafts because of its light weight and compactness. The sander has eight replaceable brushes, which back up and "cushion" eight strands of abrasive cloth. When rotating at normal speed, the wheel makes 14,000 sanding strokes per minute. As the abrasive wears, it is cut or torn off and new

To obtain additional information on equipment described here, use Inquiry Card on page 229.

abrasive is fed out from the central magazine. By changing grit, all types of finish from a coarse to a very fine satin finish can be obtained. 102

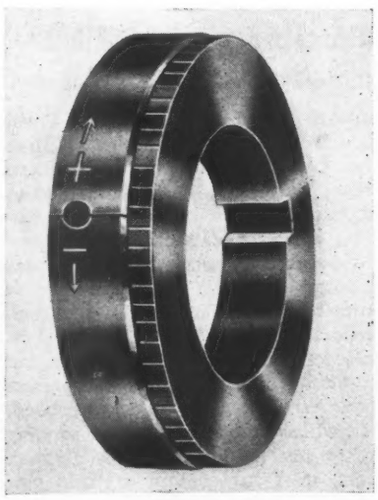


"Gyromat" for Applying Coatings to Bulky Metal Products

Norris "Gyromat" developed to coat bulky metal pieces, plastic parts, and other products. A full-coverage coating from 0.0008 to 0.025 inch thick, of any material, is applied in one passage through the "Gyromat" at high speed. The coating operation is accomplished by high-speed rotors which atomize and direct the paint or other coating material to the work being passed through the rotating bowl. The excess material (overspray) is caught by the rotating inner bowl and returned in its former fluid state for reuse, a vapor pressure equilibrium being automatically maintained. Product of the Gyromat Corporation, Fairfield, Conn. 103

Dayton Rogers Adjustable Spacing Collars

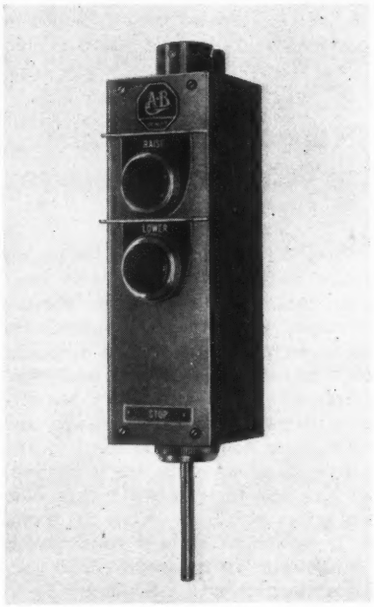
Spacing collar made of an improved special alloy steel that will take cutter-arbor nut pressures up to and including 25 tons. Produced in sizes from 5/8 inch to 2 1/2 inches by the Dayton Rogers Mfg. Co., Minneapolis, Minn. With these collars it is possible to space all milling machine cutters within 0.00025 inch through the graduations



engraved on the micrometer sleeve. Precision adjustment of the collar can be made by loosening the cutter-arbor nut after taking the first trial cut. Adjustment is then made in the plus or minus direction by using a spanner wrench furnished with the collar. The collars are so designed that there is no slipping after the arbor nut is tightened, and positive adjustment is assured throughout the production run. 104

Allen-Bradley Pendent Control Station

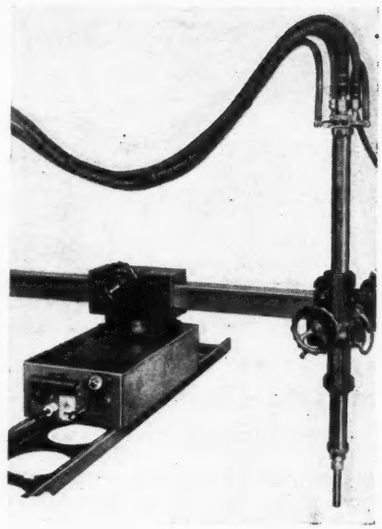
Pendent type push-button control station, brought out by the Allen-Bradley Co., Milwaukee, Wis. Designed for use as a portable control or for suspension above a machine where it can be easily reached while the operator is near the work. These Bulletin 800T pendent push-button stations can be obtained



in sizes ranging from three units, including the stop, up to ten units. All enclosures used with these stations are equipped with oil-tight control units. Each enclosure has a cable anchor at the top. Special stations can be built with any combination of pilot lights, push-button, or key-operated units. 105

Airco "Radiagraph" for Cutting, Hardening, and Welding Equipment

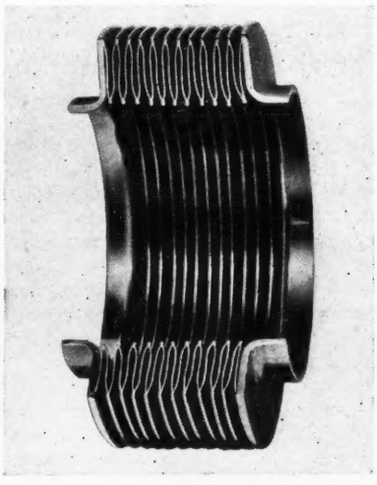
New motor-driven, straight track-guided Airco No. 41 "Radiograph" designed for jobs that require a traveling carriage to convey equipment past the work. This unit has been developed by the Air Reduction Sales Co., Division of Air Reduction Co., Inc., New York City, to simplify gas-cutting, flame-hardening, and welding operations. It is especially useful in steel mills for



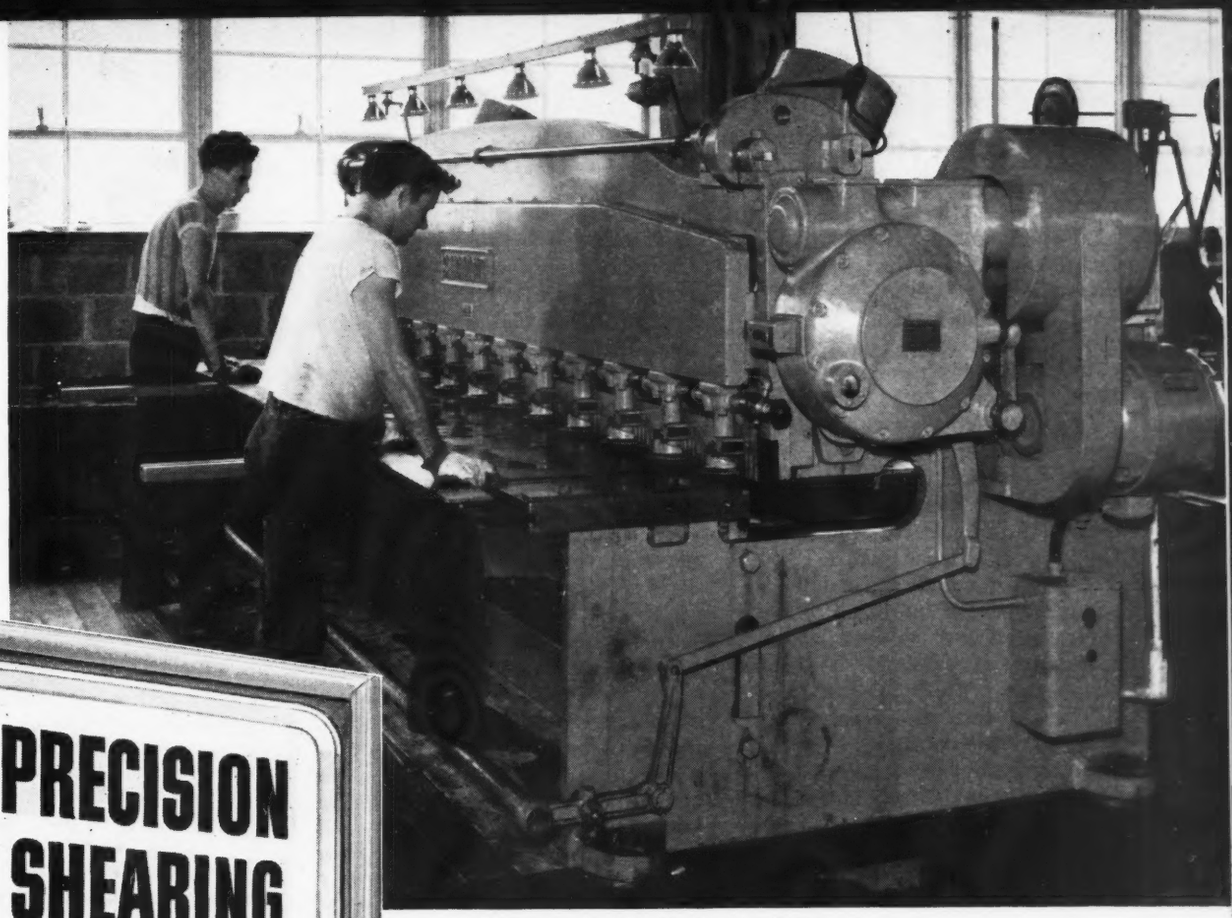
billet nicking, slab ripping, and skull cutting. Its accuracy and wide speed range make it adapted for maintenance shops where flame-hardening is used extensively. Traveling speeds range from 1 to 72 inches per minute with standard gear reduction unit, but other speed ranges can be obtained. 106

Expansion Bellows for Absorbing Vibration and Lineal Expansion

Expansion type bellows designed to absorb high-frequency vibration and lineal expansion in many types of equipment. These bellows are constructed of convoluted metal diaphragms, welded into complete units. They have been tested in many operations, and have been found especially valuable for applications involving constant high pressures, corrosive liquids and gases, and extreme temperatures in sealed piping systems. Available in sizes from 1 inch to 5 inches inside diameter, and in various lengths. Manufactured in plain and stainless steels, brass, bronze, Monel, and Inconel. Announced by Titeflex, Inc., Newark, N. J. 107

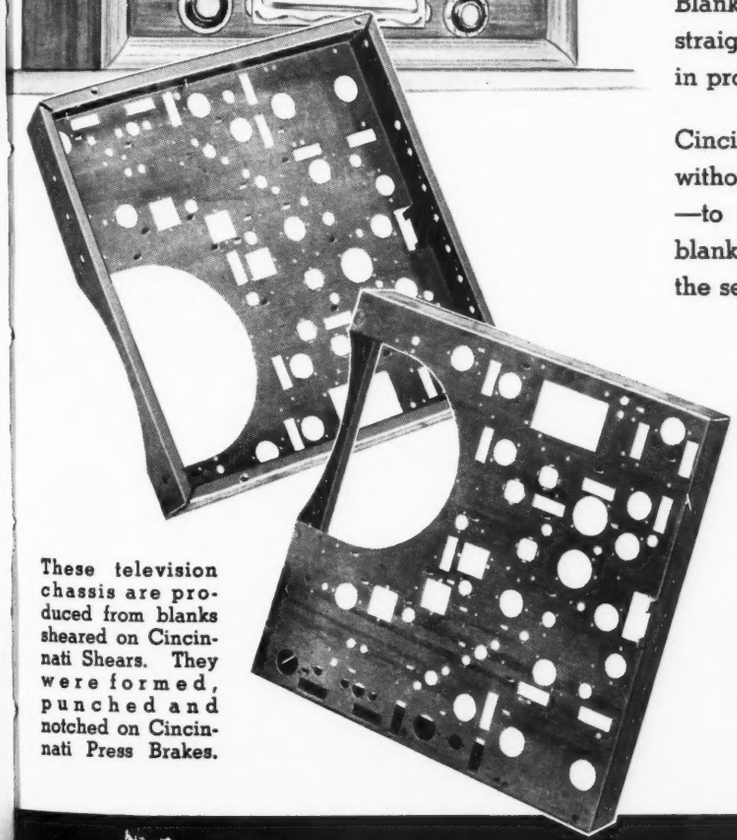


To obtain additional information on equipment described here, use Inquiry Card on page 229.



Photos courtesy Rex Engineering Company.

PRECISION SHEARING



These television chassis are produced from blanks sheared on Cincinnati Shears. They were formed, punched and notched on Cincinnati Press Brakes.

Blanks for a television chassis must be accurate in size, straight sided and square, for simple, rapid gauging in progressive operations.

Cincinnati Shears produce these and other blanks—without costly blanking dies—with speed and economy—to a plus or minus .005" tolerance. Various size blanks are sheared easily and quickly by changing the setting of the gauges.

Accurate blanks from Cincinnati Shears make forming, punching, and assembly operations easy and profitable.

Cincinnati Shears and Cincinnati Press Brakes are a team that brings quality of product with economy.

Write for Catalog S-5, covering the full line of Cincinnati Shears—the shears of accuracy.

THE CINCINNATI SHAPER CO.

CINCINNATI 25, OHIO U.S.A.

SHAPERS · SHEARS · BRAKES

Automatic Broaching Set-Up Doubles Output

THE set-up illustrated in Fig. 1, which was devised by the Colonial Broach Co., has more than doubled the output per machine-hour in broaching rods for automobile sun-visors. The operation consists of broaching two recessed flats 3.625 and 3.880 inches long on opposed sides of the rods. A rod, before and after broaching, is seen in Fig. 2. The operation is completely automatic, with the exception of loading the parts into the hopper.

The rods, which are 0.340 inch square, come to the machine with their round ends ground, as seen at the left, in Fig. 2. They are dropped into the hopper manually to insure that the ground end faces in the correct direction. From the hopper, the rods drop, four at a time, into a magazine in a shuttle device.

A hydraulic cylinder pushes the four rods into the broaching position against a positive stop. As soon as they are properly located, an interlock trips the machine and the ram moves down, broaching both sides of the four rods. At the end of the stroke, the ram stops momentarily, the stop holding the rods in place retracts, and the hydraulic cylinder pushes the finished rods out of the machine into an unloading chute. The piston in the cylinder then immediately withdraws, the locating stops return to position, the broach ram moves upward to the top of its stroke, and the machine is ready to repeat the cycle. While the broach ram is returning, four new rods drop into the shuttle.

The machine is basically a standard Colonial hydraulic press having a capacity of 10 tons and a 42-inch stroke. Operation is continuous. In the event that the hopper should become empty, the machine stops, thus serving to signal the operator. The output of the machine is 800 rods per hour.

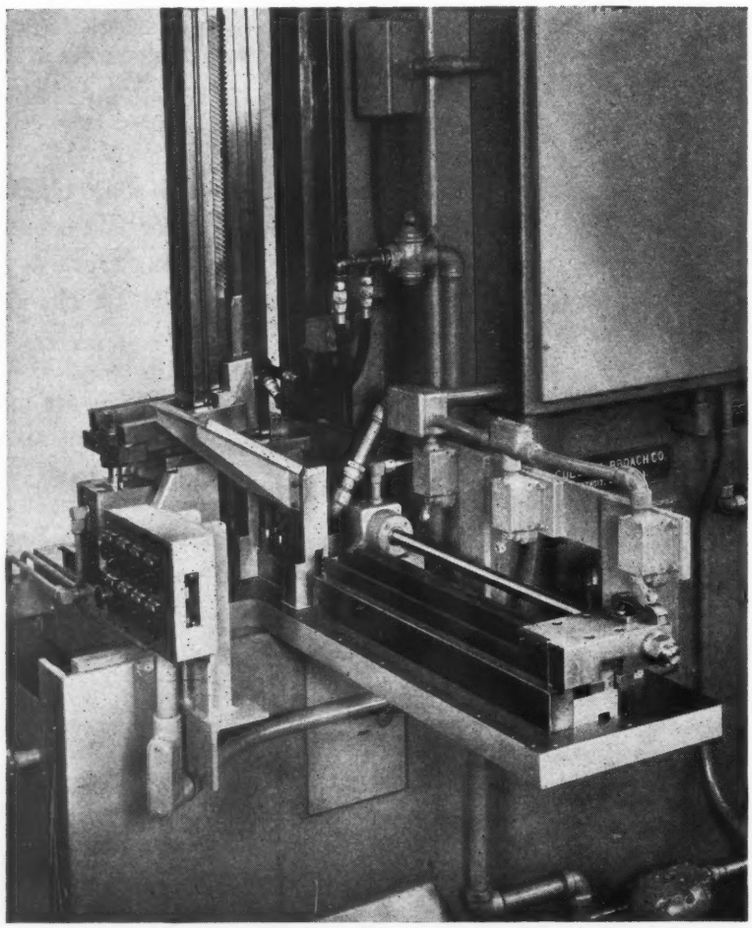


Fig. 1. Set-up for broaching long recessed flats on two opposed sides of rods for automobile sun-visors. By broaching four rods at a time, a production of 800 per hour is obtained

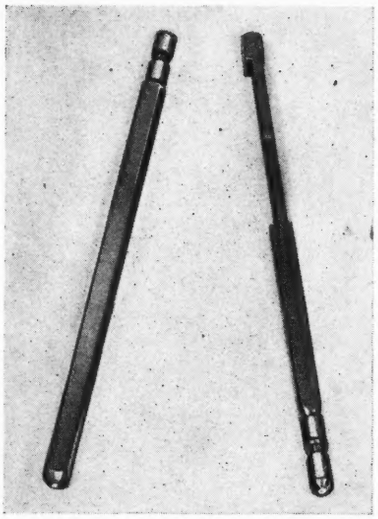


Fig. 2. Square rod having ground ends (left) is broached in the set-up shown in Fig. 1 to produce two long recessed flats on opposed sides of the rod, as shown at the right

Specified tolerances of ± 0.005 inch are maintained on the flat depths of 0.060 and 0.105 inch. A total of about 1 cubic inch of metal is removed from the eight faces broached during each cycle.

* * *

New American Standard for Drill Drivers

A new standard for drill drivers, split-sleeve, collet type, has just been approved by the American Standards Association. This type of driver is used in the automotive and mass production industries to drive straight-shank twist drills. It is particularly suitable for these industry groups because multiple-spindle drill heads can be designed with spindles on a very close center-to-center distance, and bushing plates do not have to be moved when drills must be replaced.

The standard covers drill drivers in nominal sizes from 0.0390 to 0.6875 inch, inclusive. It specifies dimensions controlling the assembly of the driver with straight-shank drills, and the taper controlling the assembly of the driver with the drill press. It also contains recommendations for the material to be used, and its heat-treatment; hardness; finish, etc. Copies of this standard (B5.27-1951) can be obtained from the American Standards Association, 70 E. 45th St., New York 17, N. Y.

Between Grinds

By E. S. Salichs

Ahoy Alloy

A recent news release began: "The S. S. United States, trans-Atlantic superliner now being built for the United States Lines, is strongly *influenced* by the use of more than 2000 tons of aluminum in its construction." We don't rightly know how a ship under the influence of aluminum would act, but it seems to us 2000 tons of anything should have a steadying effect.

Diminutive Drills

The world's smallest drills were shown at the Canadian International Trade Fair in Toronto first week in June. Measuring 1/500 inch in diameter, they are used in the manufacture of watches and fine instruments and in drilling dies for drawing nylon thread. 'Tis said that more than 3000 of them would fit in an ordinary matchbox, which should make it the equivalent of a beans-in-the-pot guessing contest.

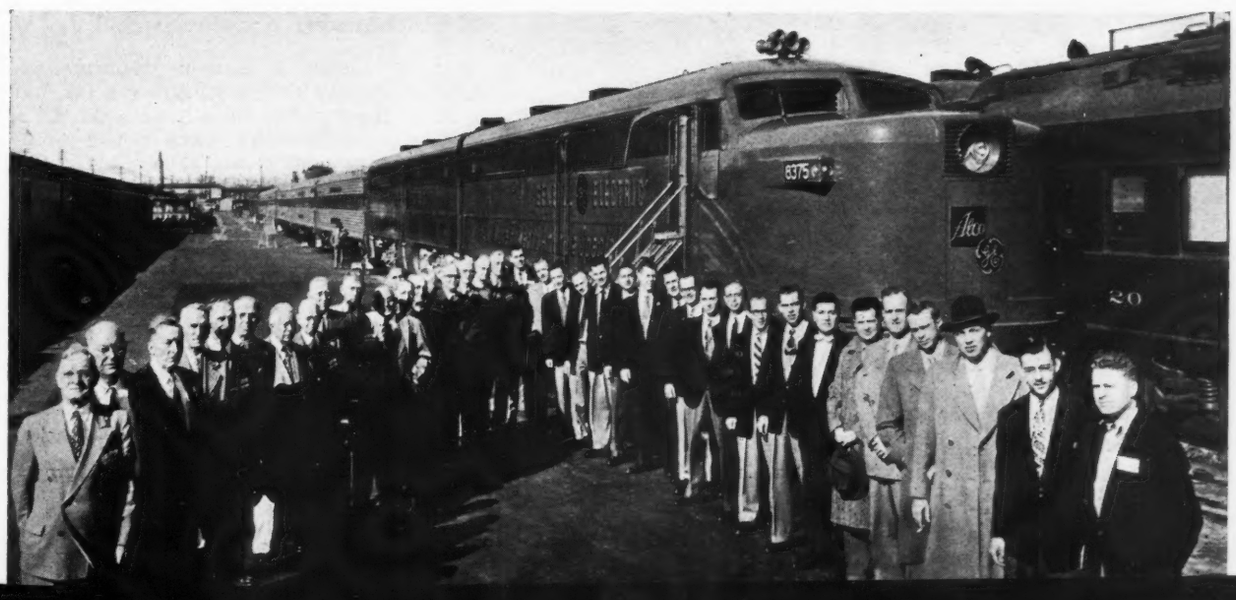
Gingerbread House

Dehydrated molasses is now a basic ingredient in a new building material. Blackstrap molasses is forced by a high pressure pump through an atomizer into a drying chamber. Here within a few seconds the molasses particles surrender their moisture to form small grains of dried molasses, later to be mixed with clay and sand. A likely story to any cook who ever messed around in a kitchen with the sticky stuff that won't move anywhere. Of course, if your diet is being supervised by an exponent of the blackstrap molasses and yogurt school for long life, you may be pleased to hear of this new market for molasses.

Keep Your Eye on Ball Or You're Flat on Mall

A land-clearing program to make way for the new Hungry Horse Dam reservoir in Montana brought a bid undercutting by $2,000,000 the nearest competing contractor. Government engineers inquired of this bidder (Wixson & Trisdale, Redding, Calif.) if there had been an error in calculation. No. So. The money-saving technique consists of using five steel balls weighing more than 4 tons each, 8 feet in diameter and fabricated from 3/4-inch boilerplate, which crash through trees and underbrush, and if they end up in the rough they take care of that, too—which is a thought for the hook-and-slice golfer. Some years back, nature did the same flattening trick with glaciers but reportedly didn't go to the trouble of making balls of the ice.

WHEN SUBSTITUTES ARE SENIORS—Twenty retired General Electric engineering and sales experts (left) are off on a train trip of 30,000 miles, having volunteered for three months' service as exhibit engineers of "More Power to America Special," the G-E train with about 2,000 examples of electrical ideas and equipment aboard. The table thus turned, twenty young company engineers (right) are staying home to work on General Electric defense assignments



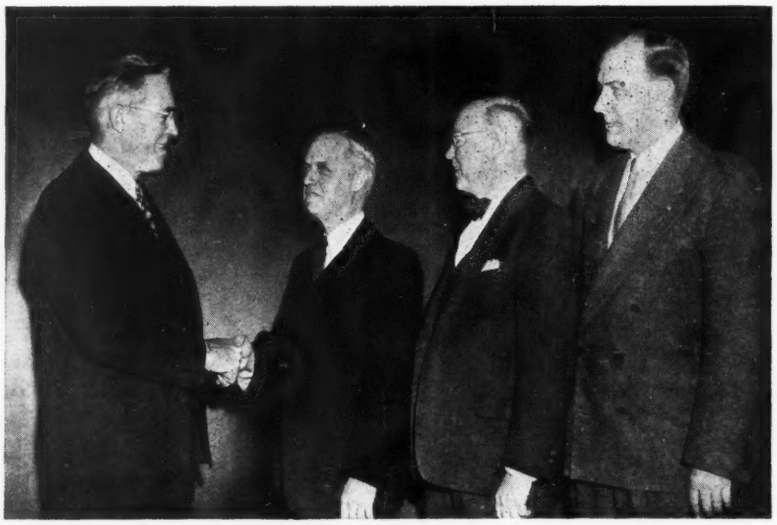
News of the Industry

Arkansas, Georgia, and Texas

GENERAL MOTORS CORPORATION, Detroit, Mich., announces that the Fabricast Division of the company is planning to erect a plant for the manufacture of aluminum castings at Jones Mills, Arkansas. The new plant will have about 100,000 square feet of floor space.

LINDBERG ENGINEERING CO., Chicago, Ill., manufacturer of heat-treating furnaces and melting furnaces, announces the opening of a direct factory sales office in Atlanta, Ga., with PHILIP J. DUFFY in charge.

T. A. NILSEN has been made district manager of a newly opened Texas office for the De Laval Steam Turbine Co., Trenton, N. J. The office is located in the Esperson Bldg., Houston, Tex.



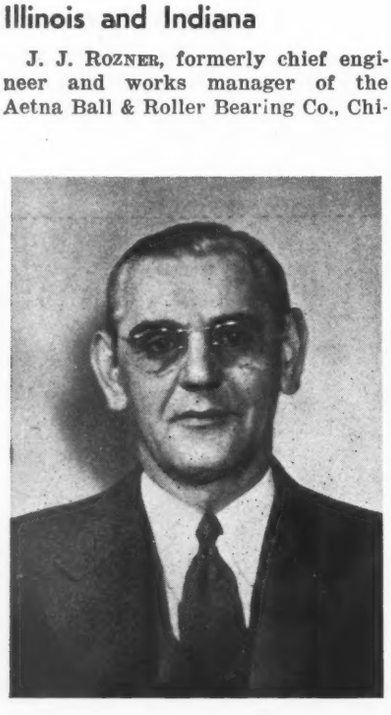
Bolton Sullivan, president of Skilsaw, Inc., Chicago, Ill., manufacturer of portable power tools, congratulates associates recently elected to new posts by the board of directors. (Left to right) Mr. Sullivan; Ralph B. Brundrett, formerly comptroller and now treasurer; Edwin B. McConville, advanced from vice-president and treasurer to the executive vice-presidency; and Paul Watts, previously general sales manager and now vice-president in charge of sales

California

GENE HELLER has been placed in charge of the sales and advertising activities of the Diamond Machine Tool Co., Los Angeles, Calif., manufacturer of punch presses, milling machines, power squaring shears, and kindred products.

Illinois and Indiana

J. J. ROZNER, formerly chief engineer and works manager of the Aetna Ball & Roller Bearing Co., Chicago, Ill., has been elected vice-president in charge of operations. J. E. DILLON will replace Mr. Rozner as chief engineer. Also announced was the appointment of C. E. POEHLER as assistant to the plant superintendent of the company. Mr. Poehler will also continue to serve in his present capacity as tool-room foreman for the time being.



(Left) J. J. Rozner, newly elected vice-president in charge of operations for the Aetna Ball & Roller Bearing Co. (Right) J. E. Dillon, who succeeds Mr. Rozner as chief engineer

WILLIAM C. FORK, works manager of the Riverdale plant of the Acme Steel Co., Chicago, Ill., and a director of the company since 1949, was elected vice-president at a recent meeting of the board of directors. FRED M. GILLIES, executive vice-president, was elected a member of the board at the same meeting.

RALPH W. RAUSCH has been appointed consulting engineer of the Link-Belt Co., Chicago, Ill., with headquarters at the Pershing Road plant in Chicago, where he has been chief engineer since 1947. JOSEPH J. RICHARD, heretofore executive chief engineer at the same plant, has been advanced to the position of chief engineer.

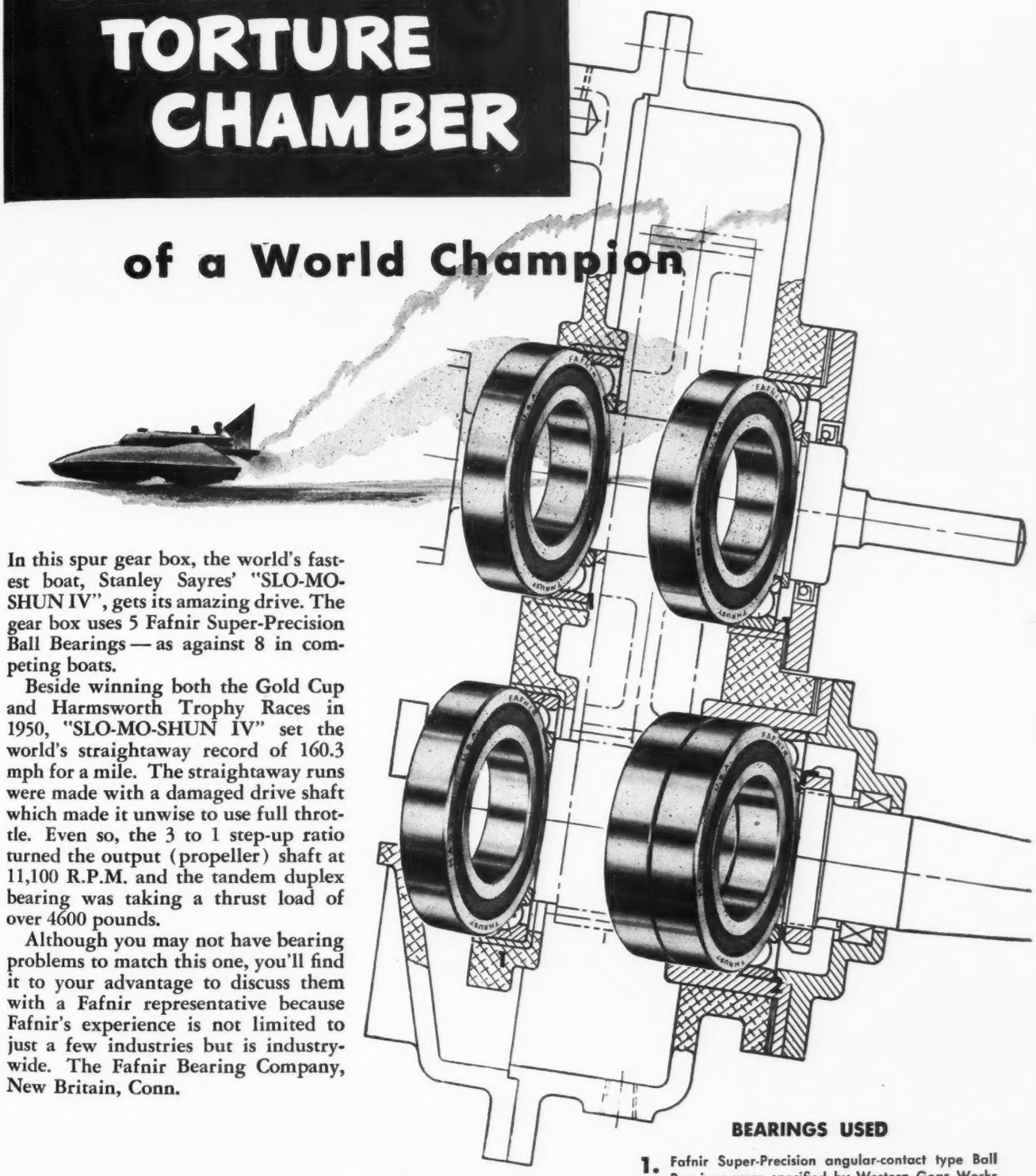
JONES & LAMSON MACHINE CO., BRYANT CHUCKING GRINDER CO., and the FELLOWS GEAR SHAPER CO., all of Springfield, Vt., have opened jointly a new office and showroom in Chicago at 5835 W. North Ave. The three companies will be represented by the same personnel as heretofore.

CINCINNATI MILLING AND GRINDING MACHINES, INC., and CINCINNATI MILLING PRODUCTS DIVISION announce the removal of the Chicago sales office to new and larger quarters at 104 N. Oak Park Ave., Oak Park, Ill.

D. K. MCILVAINE has joined the staff of the Powdered Metal Products

BEARING TORTURE CHAMBER

of a World Champion



In this spur gear box, the world's fastest boat, Stanley Sayres' "SLO-MO-SHUN IV", gets its amazing drive. The gear box uses 5 Fafnir Super-Precision Ball Bearings — as against 8 in competing boats.

Beside winning both the Gold Cup and Harmsworth Trophy Races in 1950, "SLO-MO-SHUN IV" set the world's straightaway record of 160.3 mph for a mile. The straightaway runs were made with a damaged drive shaft which made it unwise to use full throttle. Even so, the 3 to 1 step-up ratio turned the output (propeller) shaft at 11,100 R.P.M. and the tandem duplex bearing was taking a thrust load of over 4600 pounds.

Although you may not have bearing problems to match this one, you'll find it to your advantage to discuss them with a Fafnir representative because Fafnir's experience is not limited to just a few industries but is industry-wide. The Fafnir Bearing Company, New Britain, Conn.

BEARINGS USED

1. Fafnir Super-Precision angular-contact type Ball Bearings were specified by Western Gear Works of Seattle who designed and built the gear box for "SLO-MO-SHUN IV".

2. Similar to those above except these bearings are duplexed to provide greater axial and radial rigidity.

FAFNIR

BALL BEARINGS

MOST COMPLETE LINE IN AMERICA

Corporation of America, Franklin Park, Ill., as manager of the company's Electronics Division.

STANLEY F. KRZESZEWSKI was elected a vice-president of the American Wheelabrater & Equipment Corporation, Mishawaka, Ind., at a recent meeting of the board of directors. For the last 5 1/2 years he has been factory manager, and will continue to fill the duties connected with that position.

Michigan

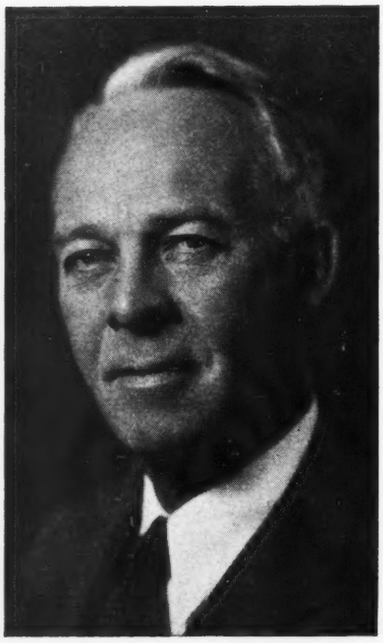
PHIL HUBER, president and general manager of the Ex-Cell-O Corporation, Detroit, Mich., was elected to the newly created position of chairman of the board of directors at a recent meeting of the board. H. GLENN BIXBY succeeds Mr. Huber as president and general manager. He was previously vice-president and treasurer. JAMES K. FULKS was elected to the newly created office of executive vice-president. Prior to this, he was vice-president in charge of manufacturing. MILTON B. MONTGOMERY, whose most recent position was factory superintendent and general assistant to Mr. Fulks, will succeed Mr. Fulks as vice-president in charge of manufacturing. EARL E. CONLIN was elected to the office of secretary and treasurer.

L. W. MERCER has been elected to the new post of executive vice-president of the Square D Co., Detroit, Mich. He was formerly vice-president and general manager of the Switch and Panel Division. F. H. ROBY has been elected vice-president in charge of sales, and L. G. MAECHTLEN has also been elected a vice-president. Both Mr. Roby and Mr. Maechtlen have been made directors.

WILLIAM C. MILLER has been appointed manager of Plant 4 of the Richards Brothers Division, Allied Products Corporation, Hillsdale, Mich. For the last four years, he has been a sales engineer with the Division. The plant that Mr. Miller will manage consists of a complete die shop and a foundry for precision casting of zinc-alloy dies.

G. K. PEETS has been promoted to the position of factory manager in charge of all aircraft jet-engine production for the Packard Motor Car Co., Detroit, Mich. GEORGE W. DEISLINGER has been named factory manager of car and marine Diesel-engine manufacturing. Mr. Peets was formerly chief inspector.

OHIO CRANKSHAFT CO. announces the removal of its Detroit office to 530 W. Eight Mile Road, Detroit 20, Mich. The office has been expanded to include complete engineering, sales, and service facilities for all phases of induction heating.



Herbert H. Pease, retiring president of the New Britain Machine Co.

New England

UNITED AIRCRAFT CORPORATION announces a major expansion program of its two East Hartford Divisions. This involves the construction of two new Connecticut plants, one at Windsor Locks and another at North Haven, which will add more than 1,000,000 square feet of production area and approximately 10,000 new workers to the corporation's defense production force. The Windsor Locks plant will house the complete facilities of the Hamilton Standard Division, which has been located at East Hartford for the last twenty years. The North Haven plant will supplement the Pratt & Whitney Aircraft Division's East Hartford operations, and will manufacture aircraft gas-turbine engine parts.

NEW BRITAIN MACHINE CO., New Britain, Conn., announces a number of important changes and promotions as follows: HERBERT H. PEASE will retire as president, but continues as chairman of the board; ROBERT T. FRISBIE, formerly first vice-president, has been elected president; RALPH S. HOWE has been advanced from the post of vice-president to executive vice-president; JULIAN C. PEASE, secretary, has been elected a vice-president, as well as a director of the

(Left to Right) Robert T. Frisbie, new president of New Britain Machine Co.; Ralph S. Howe, executive vice-president; and Julian C. Pease, recently elected vice-president and director

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5 METALS IN PRECISION-MADE REEL MACHINED WITH ONE SUNICUT OIL

The Ocean City Manufacturing Company operates Brown & Sharpe automatics on free-turning brass, aluminum, cold-rolled steel, phosphor and hardware bronze. Having used Sunicut Cutting Oils since 1941 with complete satisfaction, the plant decided a year ago to find out what other products could do. Numerous competitive oils were tested, and the best was selected for a long trial run.

But this oil did not prove satisfactory in actual use. It caused the gibs to corrode and the slides to stick. Operators found miking difficult. Downtime and rejects grew to disturbing proportions. Finally, to protect its automatics and restore its production efficiency, the plant decided to go back to Sunicut Cutting Oils and standardized on Sunicut 11.

Sunicut 11 is a "Job Proved," dual-purpose cutting oil for automatic screw machines. Its transparency permits quick and accurate miking. Among its virtues is the fact it will not stain brass. It drains rapidly, minimizing carry-off. And its high lubricating and cooling properties aid in prolonging tool life and improving finishes. Moreover, it protects finished parts from rust and corrosion. For other outstanding cutting oil case histories write for booklet M-6.

MACHINE: Brown & Sharpe No. 2G • **METAL:** 11 ST aluminum
OPERATIONS: Feed stock, center drill, counterbore, recess and countersink, tap, form and cut off • **SFPM:** 800 • **SPEED:** 3,150 rpm
PRODUCTION: 250 collar housings per hr. • **CUTTING OIL:** Sunicut 11

MACHINING PARTS for Ocean City's "90" Automatic Reel. Sunicut 11 does not corrode the bronze gibs of the automatics, minimizes carry-off, makes miking easy. A coolant tried as an "economical" replacement failed on all three counts.

THIS AUTOMATIC REEL contains six types of metals . . . free-turning brass, aluminum, cold-rolled and stainless steel, phosphor and hardware bronze. Another Sunicut grade is used on the stainless steel.

THE PRECISION PARTS that Sunicut 11 helps to make possible are put to the test as this top-quality reel goes into action. Little does the fisherman know how much of his pleasure he owes to a cutting oil.

SUN INDUSTRIAL PRODUCTS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL

SUNOCO®

company; and WILLIAM J. LOFGREN, treasurer, will hereafter serve as both secretary and treasurer.

WILMOT F. WHEELER has been elected chairman of the board of directors of the American Chain & Cable Co., Inc., Bridgeport, Conn., and will also continue as the chief executive officer of the company. CYRUS N. JOHNS has been named president. Mr. Wheeler succeeds WALTER B. LASHAR, who is retiring because of ill health.

PHILIP R. MARSILIUS, vice-president and secretary of the Producto Machine Co., Bridgeport, Conn., and

Philip R. Marsilius, recently named chief of Tool, Die, and Fixture Section of NPA

president of the Producto Corporation, Detroit, Mich., has been named chief of the Tool, Die, and Fixture Section, Machinery Division, of the National Production Authority. Mr. Marsilius is a trustee of the National Tool and Die Manufacturers Association, and is president of the Southern Connecticut Tool and Die Manufacturers Association, with headquarters in Bridgeport.

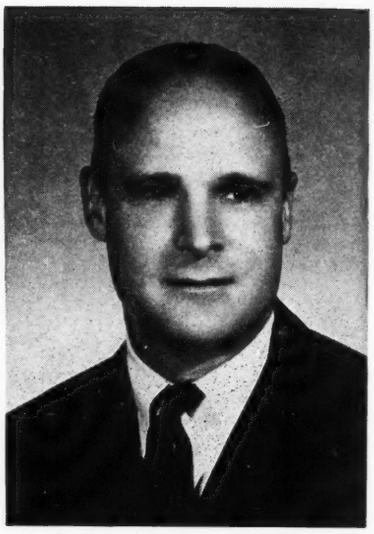
RALPH O. ANDERSON, district manager at St. Louis, Mo., for the Norton Co., Worcester, Mass., has been appointed abrasive consultant for the Machinery Division of the National Production Authority. Mr. Anderson's services will be lent by the company to the Government. His position at St. Louis will be filled during his absence by GWYNN L. PARROTT. Another announcement made by the company is the appointment of J. DOUGLAS DAWSON as general traffic manager, succeeding ELMER B. JONES, who has retired after twenty-two years of service with the company. Prior to his present appointment, Mr. Dawson served as traffic manager of the Abrasive Division.

NORTON CO., Worcester, Mass., announces the following changes in the abrasive engineering staff: JOHN R. H. TRUELSEN, formerly responsible for the southern Wisconsin area, now has charge of the northern Illinois territory; and F. DONALD WING, field engineer in Chicago, has been appointed abrasive engineer to succeed Mr. Truelsen in southern Wisconsin. Both men will serve under the direction of RAYMOND E. TAYLOR, Chicago district manager.

A. F. VINSON, manager of General Electric's Welding Divisions at Fitchburg, Mass., has temporarily relinquished his duties in order to attend the Advanced Management Program's Business Training Course at Harvard University. R. C. FREEMAN will assume Mr. Vinson's responsibilities during his absence.

LEEDS & NORTHRUP CO., Philadelphia, Pa., manufacturer of electrical measuring instruments, automatic controls, and heat-treating furnaces, announces the removal of its Boston office from 31 St. James Ave. to larger quarters at 430 Lexington Ave., Auburndale (Boston 66), Mass.

W. B. BAINTON and P. R. HATCH were recently elected vice-presidents of the Brown & Sharpe Mfg. Co., Providence, R. I., at a special meeting of the board of directors. Mr. Bainton's previous position was that of works manager. His new duties will include general supervision of all problems relating to design and production. Mr. Hatch, previously sales director, will now head the sales activities and continue to serve as assistant secretary.



Albert B. Diss, manager of manufacturing operations for the Watson-Stillman Co.

New Jersey

ALBERT B. DISS has been appointed manager of manufacturing operations for the Watson-Stillman Co., Roselle, N. J., manufacturer of hydraulic equipment. Mr. Diss joined the Watson-Stillman organization in November, 1950, as assistant to the executive vice-president.

CLEVELAND AUTOMATIC MACHINE CO. announces that the New York district office of the company has been moved from Newark, N. J., to Room 210, Ruskin Bldg., 75 S. Orange Ave., South Orange, N. J.

PIETER SMIT has been elected president of J. K. Smit & Sons, Inc., Murray Hill, N. J., manufacturers of

W. B. Bainton (left) and P. R. Hatch (right), who were recently elected vice-presidents of the Brown & Sharpe Mfg. Co.

If broaching isn't the answer, we'll tell you, too.....

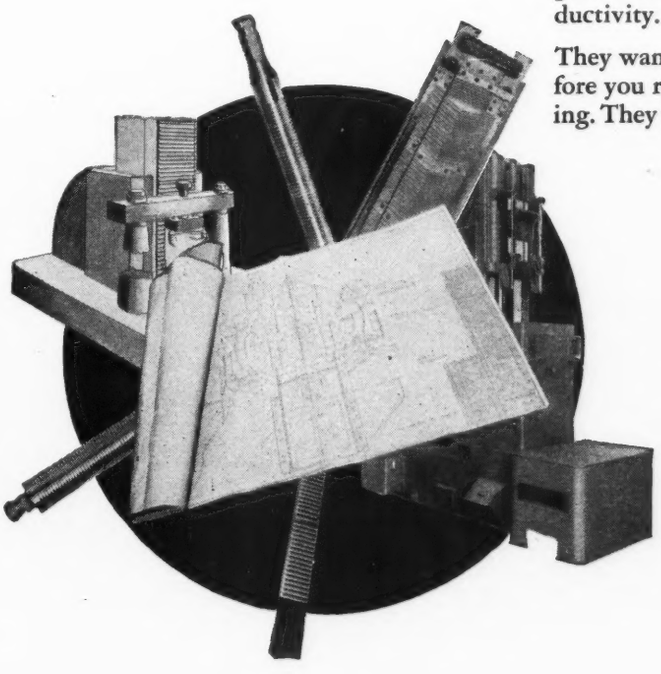
The fact that broaching accurately removes metal faster than any other process does not make it a panacea to increase the productivity of ANY operation.

Naturally we want to see broaching used wherever possible. But, today especially, with productivity for defense so vital, we *don't* want to see it used where it shouldn't be used and we *do* want to see it used to its maximum effectiveness.

Colonial's broaching specialists have been through the mill for years on practically every kind of broaching job there is. They know where broaching can and cannot be used effectively. What is more, they know HOW it can be used MOST effectively.

They have learned the hard way that the wrong broach, fixture or machine—even if it costs a few dollars less—is poor economy. It costs more in the long run, cuts productivity.

They want to help you make doubly sure you are right before you release an order for broaching equipment or tooling. They will check your requirements without cost to you.



PIONEERS OF H.S.S. BROACHING

COLONIAL

BROACH CO. DETROIT 13

For Your Tool Room

A wall or bulletin board poster of DO and DON'T items that should help you reduce broach maintenance cost. No charge. Ask for BN-1250.

industrial diamond products. Prior to his present appointment, he served as secretary-treasurer.

GEORGE W. MARSHALL, JR., and ALVIN F. HEINSOHN have been elected vice-presidents of Raybestos-Manhattan, Inc., Passaic, N. J.

New York

FRED H. HAGGERSON, president of the Union Carbide and Carbon Corporation, New York City, has also been elected chairman of the board of directors. MORSE G. DIAL has been elected an executive vice-president. Mr. Dial joined the corporation in 1929, and since 1949 has been director, vice-president, and treasurer. DR. GEORGE O. CURME, JR., has been elected vice-president in charge of research of the corporation. He was previously vice-president in charge of chemical research, and for many years has been a vice-president of the Bakelite Co. and the Carbide and Carbon Chemicals Co., divisions of the Union Carbide and Carbon Corporation.

C. B. SCHMIDT has been elected president of the De Laval Separator Co., New York City, succeeding GEORGE C. STODDARD, who is retiring after thirty years of association with the company. Mr. Stoddard will continue to serve in an advisory capacity. Mr. Schmidt has been with the company for the last twenty-nine years, and prior to his present appointment held the office of vice-president. GEORGE W. SMITH, president of the De Laval Steam Turbine Co., was elected chairman of the board of directors of the De Laval Separator Co.

S. VERNON TRAVIS has been made assistant general sales manager of the General Electric Co.'s Large Apparatus Division at Schenectady, N. Y. He is succeeded in his former position as manager of sales for the company's Large Motor and Generator Divisions by LOUIS H. MATTHES. WILLIAM F. OSWALT and FRANK T. GAMEC have been appointed assistant manager of manufacturing and production manager, respectively, of the Control Divisions of the company.

A. E. VAN CLEVE, vice-president of the Crucible Steel Co. of America, New York City, was recently presented with the U. S. Navy Award for distinguished public service. Mr. Van Cleve received the award in recognition of the outstanding record in Naval ordnance production made by the Atha Works of the company, Harrison, N. J., of which he was in charge during World War II.

CARL HIRSCHMANN CO., 30 Park Ave., Manhasset, N. Y., has been appointed United States representative for the thread-rolling machines and precision thread-rolling dies manufactured by Thommen, S.A., Waldenburg, Switzerland. These products will be carried in stock at Manhasset, and factory service and parts will be available there.

WALDES KOHINOOR, INC., Long Island City, N. Y., announces a change in address of the following representatives of the company: EHRET & KINSEY have moved to new offices at 141 W. Jackson Blvd., Chicago, Ill.; BOBKER BEARINGS are now located at 282 Seventh Ave., New York; and BEARINGS SERVICE & SUPPLY are now at 1850 Market St., Denver, Colo.

BABCOCK & WILCOX TUBE CO., New York City, announces the following changes in management personnel: LUKE E. SAWYER, previously executive vice-president, has been elected president to take the place of ALFRED IDDLES, who has been elected chairman of the board. ISAAC HARTER, the former chairman, becomes a consultant to the company.

FRED K. POWELL, JR., formerly director of engineering of the American Machine & Foundry Co., New York City, has been named vice-president in charge of engineering, and ARNOLD K. BROWN has been appointed executive vice-president and a director. Mr. Brown was previously vice-president and director of the Brown & Sharpe Mfg. Co.

ELMER E. LEGGE, general manager of the Henry & Wright Division of the Emhart Mfg. Co., is now also general manager of the firm's V & O Press Co. Division in Hudson, N. Y. GILBERT T. COOVERT has been appointed acting factory manager of the V & O Press Co. Division. Mr. Legge succeeds HERMAN F. ZORN, who has resigned.

SERVOMECHANISMS, INC., announce the removal of the main office and home plant of the company from Old Country and Glen Cove Roads, Mineola, L. I., to new and larger quarters at Post and Stewart Aves., Westbury, L. I., N. Y.

AMERICAN MACHINE & FOUNDRY CO., New York City, has acquired the CLEVELAND WELDING CO. and the JUNIOR TOY CORPORATION, whose production facilities are suitable for both defense work and consumer goods manufacture.

I. R. WALKER, general manager of the Saw Division of R. Hoe & Co., Inc., New York City, has been elected vice-president. In addition to his new responsibilities, he will continue to fill his former duties.

DONALD D. TOMKINSON has been named executive vice-president of the Daco Machine & Tool Co., Brooklyn, N. Y., manufacturer of precision dies and fixtures, as well as a new line of electronic instruments.

COSA CORPORATION, 405 Lexington Ave., New York 17, N. Y., has been appointed sales agent for the SIGMA INSTRUMENT CO., LTD., of England, manufacturer of a complete line of inspection instruments.

NATIONAL TOOL CO., Cleveland, Ohio, has appointed AUSTIN FORD LOGAN, 115 W. Chippewa St., Buffalo 2, N. Y., agent for the company in western New York State.

EUTECTIC WELDING ALLOYS CO., Flushing, N. Y., announces its removal to larger quarters at 40-40 172nd St., Flushing, N. Y.

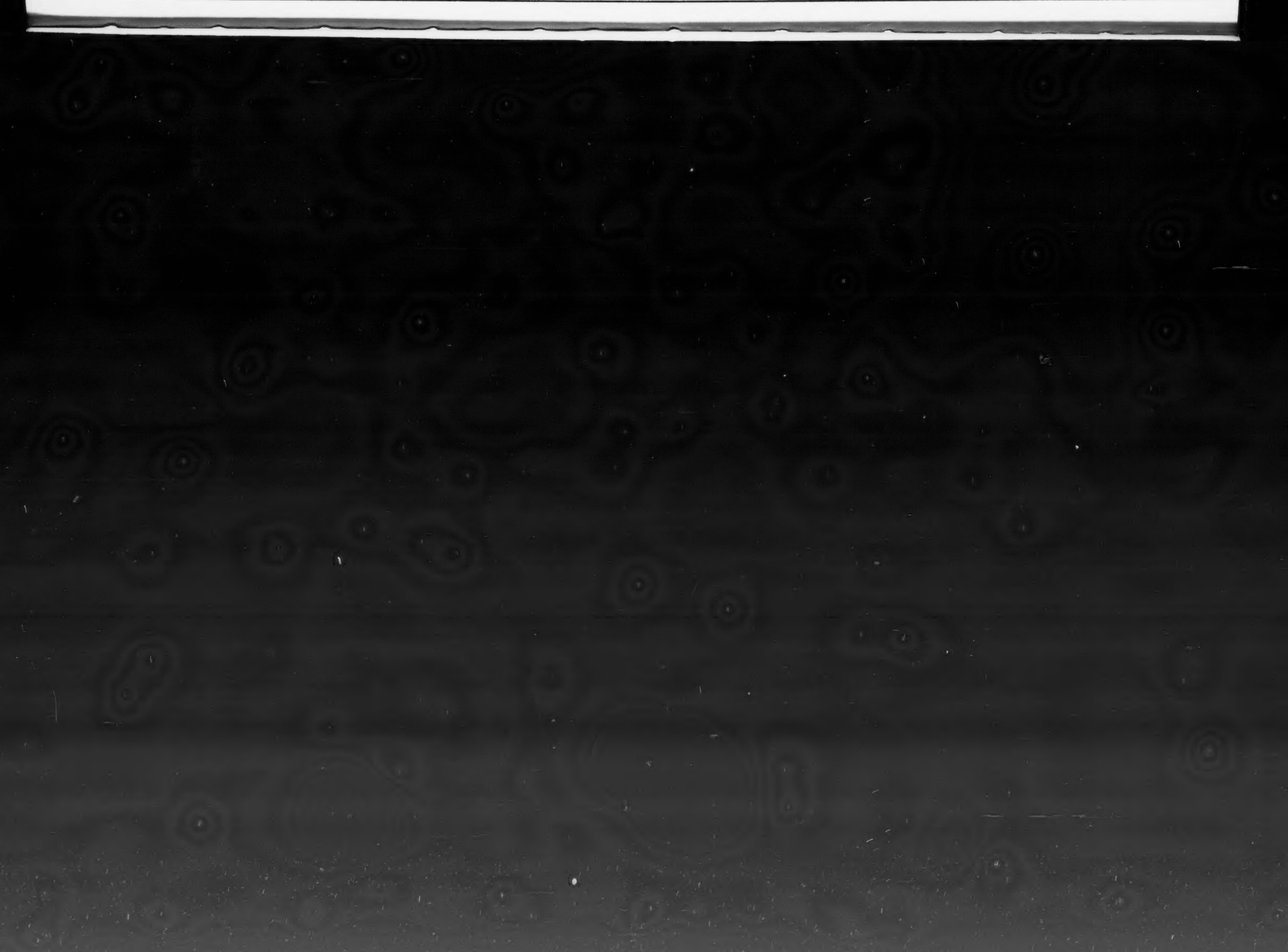
HERMAN A. BOTTENHORN has been appointed chief engineer of the Loewy Rolling Mill Division of Hydropress, Inc., New York City. He has held similar positions with other rolling mill concerns.

Ohio

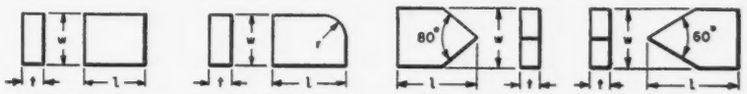
A. F. JELINEK, chief engineer of the Cleveland Automatic Machine Co., Cincinnati, Ohio, and J. C. MAEZER, factory manager, were elected members of the board of directors of the company. Mr. Jelinek has been associated with the organization for thirty-three years, and Mr. Maezer for twenty-two years.

O. WENDELL MACY has been appointed sales manager of the Hydraulic Power Division, Hydraulic Press Mfg. Co., Mount Gilead, Ohio. Prior to this connection, he had been sales manager for seven years with the Logansport Machine Co., Inc., Logansport, Ind.

O. Wendell Macy, sales manager of the Hydraulic Power Division, Hydraulic Press Mfg. Co.



AMERICAN STANDARD SHAPES AND SIZES OF SINTERED-CARBIDE TIPS FOR SINGLE-POINT TOOLS—1



Thickness t	Width w	Length l	Tip Style Numbers Stocked	Thickness t	Width w	Length l	Tip Style Numbers Stocked
1/16	1/8	5/8	1010 2010	1/8	3/8	1/2	1180* 2180
1/16	3/16	1/4	1020 2020	1/8	3/8	3/4	1190 2190
1/16	1/4	5/16	1030* 2030 5030	1/8	1/2	1/2	1200* 2200 5200 6200
3/32	3/16	5/16	1040 2040	1/8	1/2	3/4	1210† 2210
3/32	3/16	1/2	1050* 2050	1/8	3/4	3/4	1215 2215
3/32	1/4	3/8	1060 2060	5/32	3/8	9/16	1220 2220
3/32	1/4	1/2	1070* 2070	5/32	3/8	3/4	1230 2230
3/32	5/16	3/8	1080* 2080 5080 6080	5/32	5/8	5/8	1240* 2240 5240 6240
3/32	3/8	3/8	1090* 2090	3/16	5/16	7/16	1250 2250
3/32	3/8	1/2	1100 2100 5100 6100	3/16	5/16	5/8	1260* 2260
3/32	7/16	1/2	1105* 2105 5105	3/16	3/8	1/2	1270* 2270
1/8	3/16	3/4	1110* 2110	3/16	3/8	5/8	1280 2280
1/8	1/4	1/2	1120* 2120	3/16	3/8	3/4	1290 2290
1/8	1/4	5/8	1130 2130	3/16	7/16	5/8	1300 2300
1/8	1/4	3/4	1140* 2140	3/16	7/16	13/16	1310 2310
1/8	5/16	7/16	1150 2150	3/16	1/2	1/2	1320* 2320
1/8	5/16	1/2	1160* 2160	3/16	1/2	3/4	1330† 2330
1/8	5/16	5/8	1170* 2170	3/16	3/4	3/4	1340* 2340 5340 6340

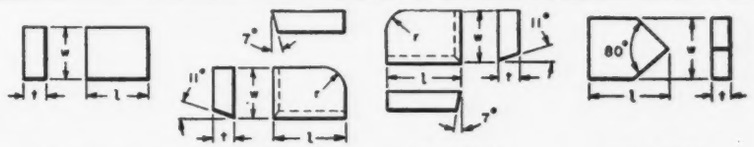
Notes: Six styles or shapes of sintered tips, known as Styles 1000, 2000, 3000, 4000, 5000, and 6000, have been adopted by the carbide manufacturing industries. Commercial catalogues will carry these sizes and designations. All dimensions are in inches. Tolerances are as follows: + 0.015 — 0.000 on tip dimensions up to 3/8 inch; + 0.020 — 0.000 on tip dimensions over 3/8 inch through 1 inch; and + 0.040 — 0.000 on tip dimensions over 1 inch through 2 inches. Values of r are to fit the recess in the shank. This radius on Styles 2000, 3000, and 4000 should be 1/8 inch for tip widths of 1/8 inch through 1/4 inch; 3/16 inch for tip widths of 9/32 inch through 3/8 inch; and 1/4 inch for tip widths over 3/8 inch.

*Signifies 1/32 inch over size on width, excluding tolerance. †Signifies 1/32 inch over size on length, excluding tolerance. This excess stock is provided to facilitate the grinding of two opposite tip surfaces to size when, for example, the tip extends entirely across the shank width.

MACHINERY'S Data Sheet No. 683, June, 1951

Approved by American Standards Association as B5.22—1950

AMERICAN STANDARD SHAPES AND SIZES OF SINTERED-CARBIDE TIPS FOR SINGLE-POINT TOOLS—2



Thickness t	Width w	Length l	Tip Style Numbers Stocked	Thickness t	Width w	Length l	Tip Style Numbers Stocked
1/4	3/8	9/16	1350 3350 4350	5/16	1/2	1	1450 3450 4450
1/4	3/8	3/4	1360 3360 4360	5/16	5/8	1	1460* 3460 4460
1/4	7/16	5/8	1370 3370 4370	5/16	3/4	3/4	1470* 3470 4470
1/4	1/2	3/4	1380* 3380 4380	5/16	3/4	1	1475† 3475 4475
				5/16	3/4	1 1/4	1480† 3480 4480
1/4	9/16	1	1390 3390 4390				
1/4	5/8	5/8	1400* 3400 4400	3/8	1/2	1	1500 3500 4500
1/4	3/4	3/4	1405* 3405 4405	3/8	5/8	1	1510† 3510 4510
1/4	3/4	1	1410† 3410 4410 5410	3/8	3/4	1 1/4	1520† 3520 4520
				3/8	3/4	1 1/2	1525 3525 4525
5/16	7/16	5/8	1420 3420 4420				
5/16	7/16	15/16	1430 3430 4430	1/2	3/4	1 1/4	1540† 3540 4540
5/16	1/2	3/4	1440* 3440 4440	1/2	3/4	1 1/2	1550 3550 4550

Notes: Six styles or shapes of sintered tips, known as Styles 1000, 2000, 3000, 4000, 5000, and 6000, have been adopted by the carbide manufacturing industries. Commercial catalogues will carry these sizes and designations. All dimensions are in inches. Tolerances are as follows: + 0.015 — 0.000 on tip dimensions up to 3/8 inch; + 0.020 — 0.000 on tip dimensions over 3/8 inch through 1 inch; and + 0.040 — 0.000 on tip dimensions over 1 inch through 2 inches. Values of r are to fit the recess in the shank. This radius on Styles 2000, 3000, and 4000 should be 1/8 inch for tip widths of 1/8 inch through 1/4 inch; 3/16 inch for tip widths of 9/32 inch through 3/8 inch; and 1/4 inch for tip widths over 3/8 inch.

*Signifies 1/32 inch over size on width, excluding tolerance. †Signifies 1/32 inch over size on length, excluding tolerance. This excess stock is provided to facilitate the grinding of two opposite tip surfaces to size when, for example, the tip extends entirely across the shank width.

MACHINERY'S Data Sheet No. 684, June, 1951

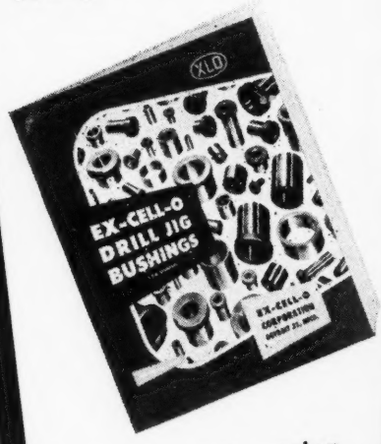
Approved by American Standards Association as B5.22—1950

PICK THE BUSHING TO FIT THE JOB...

Order from EX-CELL-O's Stock!

XLO
EX-CELL-O for PRECISION

Let This Catalog Help You . . .



This Ex-Cell-O catalog, Bulletin 35371, will help you pick the right bushing to fit the job. A copy will be sent to you on request without obligation.

Several types of Ex-Cell-O Drill Jig Bushings and liners are used in the box type jig pictured above. The Ex-Cell-O Bushing Catalog will help you select the right bushings for your jobs, and you can be sure of prompt shipment of standard bushings from stock. Standard bushings with Special hole sizes are stocked in Detroit in semi-finished form, and can be finished quickly to the exact size you require. You'll find that the uniform accuracy, finish and hardness of Ex-Cell-O Bushings prolong the life of both the bushings and the tools used with them.

FAST SHIPMENT FROM STOCK IN FOUR CITIES: In addition to a stock of over a quarter of a million bushings being renewed constantly in Detroit, standard bushings also are stocked for immediate shipment at Ex-Cell-O Corporation, 53 Park Place, New York; Machinery Sales Co., 2838 Leonis Blvd., Los Angeles, Calif., and Williams & Wilson, Ltd., 11 Front St. E., Toronto, Ontario, Canada.

EX-CELL-O CORPORATION

DETROIT 32, MICHIGAN

MANUFACTURERS OF PRECISION MACHINE TOOLS • CUTTING TOOLS
RAILROAD PINS AND BUSHINGS • DRILL JIG BUSHINGS • AIRCRAFT
AND MISCELLANEOUS PRODUCTION PARTS • DAIRY EQUIPMENT

0's

WILLIS H. KUHLMAN has been appointed to the newly created post of supervisor of Mona-Matic lathe sales for the Monarch Machine Tool Co., Sidney, Ohio. SAILOR E. BEER, who has been associated with the company in various special sales capacities for the last six years, has been named distributor sales manager. Another change announced by the company is the transfer of DONALD J. HARSHBARGER from the New York sales office to the Pittsburgh branch office. His duties at New York will be assumed by HARRY C. HENNEQUIN.

CINCINNATI METALCRAFTS, INC., Cincinnati, Ohio, has acquired the assets and trade name of the SEBASTIAN LATHE CO. from the AMERICAN STEEL FOUNDRIES, the former owners, who are retaining the plant and manufacturing facilities. The newly acquired company will be known as the Sebastian Lathe Division, Cincinnati Metalcrafts, Inc. Manufacturing and administrative operations have been moved to the plant of Cincinnati Metalcrafts, Inc., at 5000 Brotherton Road, Cincinnati.

DONALD C. KOPP, service engineer with the Monarch Machine Tool Co., Sidney, Ohio, will spend the next twelve months in Europe on a special assignment for the company. Mr. Kopp sailed on May 1 on the *Queen Mary* to cover western Europe for the company in connection with ECA and MDAP operations. He will make his headquarters in London, England. PAUL HAWKINS, whom Mr. Kopp succeeds, is returning to new responsibilities in the home office sales force.

CLEVELAND TAPPING MACHINE CO., a subsidiary of AUTOMATIC STEEL PRODUCTS, INC., Canton, Ohio, announces the appointment of the following dealers: MCVOY-HAUSMAN CO., 2024 Sixth Ave., North, Birmingham, Ala.; CHARLES W. STONE CO., 1019 Marquette Ave., Minneapolis, Minn.; and JOHN S. YOUNG CO., LTD., 257-261 Eglinton St., Glasgow C5, Scotland.

GENERAL ELECTRIC CO. announces the following appointments at its new turbo-jet engine plant in Lockland, Ohio: GEORGE L. ZIMMERMAN, manager of Assembly Division; PAUL NICHOLS, manager of Development Manufacturing Division; A. W. JACOBSEN, manager of Parts Division; and MARC A. DEFERRANTI, manager of facilities.

G. E. CAMPBELL has been appointed assistant works manager and DONALD A. SUTHERLAND industrial sales manager of the Pesco Products Division of Borg-Warner Corporation, Bedford, Ohio, manufacturer of hydraulic power units, valves, etc. E. J. FOLTZ has been promoted to industrial relations manager.

CHARLES H. BESLY & CO., manufacturers of taps, reamers, and drills, have opened a new warehouse and sales office at 6516 Detroit Ave., Cleveland 2, Ohio, under the direction of T. F. MUMMERY, JR.

CLAYTON E. SCHOLES has been appointed assistant to the president of the Osco Steel Co., Cleveland, Ohio. He was formerly district manager of the Solar Steel Corporation.

Pennsylvania and Maryland

ROBERT W. SUMAN has been appointed chief engineer of the Link-Belt Co.'s Philadelphia plant. He has been chief engineer for power transmission products since 1946, and is now assuming the added responsibility of materials-handling equipment engineering. WILLIAM S. CAMPBELL, formerly chief engineer, has retired.

KENNAMETAL, INC., Latrobe, Pa., manufacturer of cemented-carbide tools, announces the appointment of two new application engineers: GORDON KIMBALL, 1537 Main St., Springfield, Mass., and F. O. HILL, 2443 Prospect Ave., Cleveland, Ohio. Mr. Hill was transferred to Cleveland from the Cincinnati office.

FIRTH STERLING STEEL & CARBIDE CORPORATION, McKeesport, Pa., announces the following changes in personnel: W. P. NOLAN has been appointed chief engineer. He formerly served as superintendent of construction and maintenance, and will be succeeded as superintendent of maintenance by T. F. NAKLES. T. G. BARNES has been named production manager, and J. T. O'BRIEN becomes works manager of the Steel Division and of the Globe Wire Division.

REM-CRU TITANIUM, INC., announces that permanent headquarters of the company have now been established at Midland, Pa., where production, sales, and research on titanium and titanium alloys will be centered. Temporary headquarters were at Bridgeport, Conn. The company is jointly owned by Remington Arms, Inc., and the Crucible Steel Co. of America. C. I. BRADFORD is director of operations; E. L. WEMPLE, production manager; GEORGE T. FRASER, sales manager; W. L. FINLAY, research manager; G. E. HUTCHINSON, supervisor of process engineering and control; and C. E. NEWCOMB, supervisor of equipment development.

E. W. RITTER, manager of the new Electronic Tube Division of the Westinghouse Electric Corporation, Pittsburgh, Pa., has been named a vice-president of the company, and E. V. HUGGINS has been elected to the position of executive vice-president of the Westinghouse Electric International Co. WILLIAM G. MARSHALL, who has been vice-president in charge of industrial relations for seventeen years, is retiring.

C. W. HOLLINGSWORTH, manager of the Unbrako Socket Screw Division of the Standard Pressed Steel Co., Jenkintown, Pa., has been made divisional sales manager. He will be succeeded in his former position as manager of the Socket Screw Division by RAYMOND N. GRUBER.

YODER CO., Cleveland, Ohio, manufacturer of cold-roll forming, slitting, and tube mill machinery, has opened a sales office in the First National Bank Bldg., Pittsburgh, Pa., with JOSEPH M. HILL in charge. Mr. Hill was formerly connected with the Cleveland office.

(Left) W. P. Nolan, newly appointed chief engineer of the Firth Sterling Steel & Carbide Corporation. (Right) J. T. O'Brien, works manager of the Steel Division and of the Globe Wire Division

ROY A. HUNT, president of the Aluminum Co. of America, Pittsburgh, Pa., since 1928 was named chairman of the executive committee at a meeting of the board of directors. He is succeeded as president by I. W. WILSON, heretofore senior vice-president.

L. B. GEZON and O. A. HUNTSMAN have been appointed sales manager and assistant sales manager, respectively, of the Metal-Clad and Switchboard Section of the General Electric Company's Switch Gear Divisions at Philadelphia, Pa.

READING CHAIN & BLOCK CORPORATION, Reading, Pa., announces that the name of the firm has been changed to READING CRANE & HOIST CORPORATION. This change was made merely to more accurately describe the company's products, and involves no change in the ownership or management of the concern.

WESTINGHOUSE ELECTRIC CORPORATION, Pittsburgh, Pa., announces the formation of a new Air-Arm Division and plans for the construction of a plant in Baltimore, Md., where electrical equipment for the aviation industry will be built.

THOMAS A. WILLSON, JR., has been elected vice-president of Willson Products, Inc., Reading, Pa., manufacturer of welding goggles and helmets. He will also continue to fill the duties of assistant secretary of the corporation, a position he has held since 1947.

ALONZO G. DECKER, one of the founders of the Black & Decker Mfg. Co., Towson, Md., has been elected president to succeed S. Duncan Black, who died recently. Mr. Decker has been vice-president and general manager of the company since its inception in 1910. Also announced was the promotion of ROBERT D. BLACK to vice-president, and the appointment of GLEN H. TRESLAR to Mr. Black's former position as vice-president and general manager.

©Fabian Bachrach

Alonzo G. Decker, new president of Black & Decker Mfg. Co.

Wisconsin and Minnesota

RICHARD J. BROWN has been appointed advertising and sales promotion manager for the Delta Power Tool Division of the Rockwell Mfg. Co., Milwaukee, Wis. He was previously director of advertising and sales promotion for the Crane Packing Co. of Chicago.

Richard J. Brown, new advertising and sales promotion manager for the Delta Power Tool Division, Rockwell Mfg. Co.

L. B. MCKNIGHT has been elected to the newly created position of executive vice-president of the Chain Belt Co., Milwaukee, Wis. Since 1928, Mr. McKnight has served as vice-president and director.

GREER HYDRAULICS, INC., Brooklyn, N. Y., has appointed the J. M. GRIMSTAD Co., 2509 Thirtieth Ave., South, Minneapolis, Minn., sales and service representative for the company's line of hydraulic accumulators, filters, valves, etc.

* * *

Gearing Industry Reports Steady Increase

According to the latest figures of the American Gear Manufacturers Association, the volume of business in the gearing industry increased by 2.7 per cent in March, compared with the previous month. The AGMA index figure for March was 830.7.

Coming Events

JUNE 3-8—Summer meeting of the SOCIETY OF AUTOMOTIVE ENGINEERS at the French Lick Springs Hotel, French Lick, Ind.

JUNE 4-6—Thirty-fifth annual meeting of the AMERICAN GEAR MANUFACTURERS ASSOCIATION at the Homestead, Hot Springs, Va. Executive secretary, Newbold C. Goin, Empire Bldg., Pittsburgh 22, Pa.

JUNE 11-14—Semi-annual meeting of the AMERICAN SOCIETY OF MECHANICAL ENGINEERS in Toronto, Canada; headquarters, Royal York Hotel. Executive assistant secretary, Ernest Hartford, 29 W. 39th St., New York 18, N. Y.

JUNE 11-15—Second annual CONFERENCE ON INDUSTRIAL RESEARCH at Columbia University in New York City. Director, David B. Hertz, assistant professor of industrial engineering, Columbia University, New York 27, N. Y.

JUNE 11-16—FIRST NATIONAL CONGRESS OF APPLIED MECHANICS in Chicago, Ill., under the sponsorship of the Illinois Institute of Technology, Chicago 16, Ill., and three other universities, as well as nine professional societies. For further information, address director of public relations, James W. Armsey, Illinois Institute of Technology, Chicago 16, Ill.

JUNE 18-22—Annual meeting of the AMERICAN SOCIETY FOR TESTING MATERIALS at Atlantic City, N. J.; headquarters, Chalfonte-Haddon Hall Hotel. Secretary, C. L. Warwick, 1916 Race St., Philadelphia 3, Pa.

JULY 30-AUGUST 2—Convention of the AMERICAN ELECTROPLATERS' SOCIETY at the Statler Hotel in Buffalo, N. Y. Further information can be obtained by addressing the Society at P. O. Box 168, Jenkintown, Pa.

OCTOBER 15-19—THIRTY-THIRD ANNUAL METAL SHOW and NATIONAL METAL CONGRESS at Detroit, Mich. Sponsored by the American Society for Metals; American Welding Society; Metals Branch, American Institute of Mining and Metallurgical Engineers; and Society for Non-Destructive Testing. Further information can be obtained from W. H. Eisenman, managing director, American Society for Metals, 7301 Euclid Ave., Cleveland 3, Ohio.

OCTOBER 22 - 24—Seventh annual ELECTRONICS CONFERENCE at the Edgewater Beach Hotel in Chicago, Ill. Publicity committee chairman, J. W. Armsey, Illinois Institute of Technology, Chicago 16, Ill.

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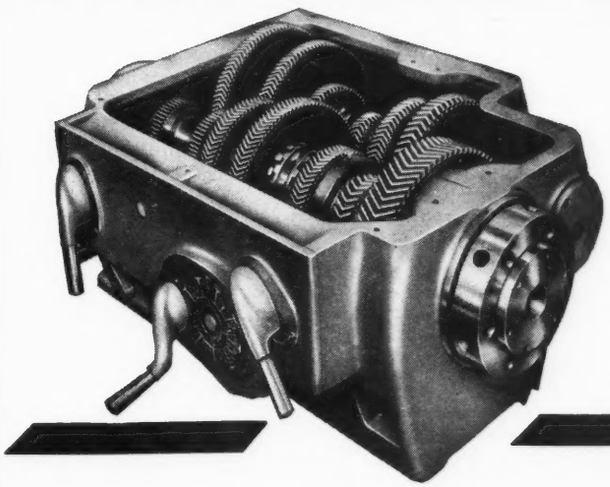

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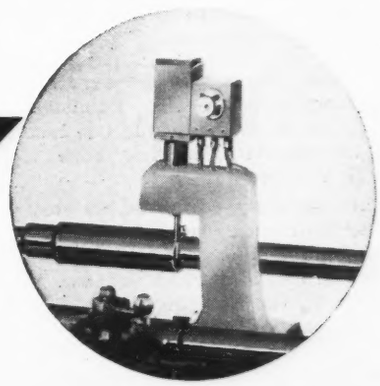

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New Books and Publications

THOMAS' REGISTER OF AMERICAN MANUFACTURERS (1951). 8000 pages, 9 by 14 inches. Published by the Thomas Publishing Co., 461 Eighth Ave., New York 1, N. Y. Price, $15 (renewal, $12.50).

More than 70,000 products are classified in the forty-first edition of this well-known purchasing encyclopedia, which covers all lines of manufacture in the United States. So vast is the scope of this work that the information presented requires about 8000 pages, and is published in three volumes, in addition to the index or finding list, for convenient reference.

The first two volumes list the names and addresses of manufacturers classified by products. The products are classified not only by generalized group names but by specific types, so that the prospective buyer can easily find the particular type that will meet his requirements. The names of the manufacturers under each product classification are arranged by states and cities, thus making it easy for a buyer to select a product within certain geographical boundaries if desired. All classifications are thoroughly cross-indexed.

The third volume contains an alphabetical list of manufacturers with branches, subsidiaries, and other data such as company officials and cable codes. It also gives an alphabetical list of trade names, together with export and other miscellaneous information.

Buyers, sales managers, research departments, production executives, and all those who require a list of products or names of manufacturers for various purposes will find this work an invaluable aid.

STANDARD METAL DIRECTORY. 818 pages, 6 by 9 inches. Published by the Atlas Publishing Co., Inc., 425 W. 25th St., New York 1, N. Y. Price, $15.

This directory covers 10,000 steel mills, foundries, smelters, rolling mills, and non-ferrous metal plants in the United States and Canada. It is now in the twelfth edition, and the present book has been completely revised. The directory is divided into five sections as follows: Iron and steel plants; ferrous and non-ferrous metal foundries; metal rolling mills; metal rolling plants; and smelters and refiners of non-ferrous metals. The plants are listed geographically and alphabetically, and such information as plant equipment, products manufactured, capacity, primary and secondary raw materials consumed, names of officers, as well as purchasing agent and sales manager, are included.

The book also contains special lists of distributors of pig iron, ores, and ferro-alloys; coke ovens in the United States fabricators and distributors of iron and steel products; metal stamping plants; forging manufacturers, die-casting plants; metal powder producers and sellers; smelters and refiners of primary and secondary non-ferrous metals; storage battery manufacturers; galvanizing plants; aircraft manufacturers; automotive vehicle manufacturers; dealers in pipe and rails; scrap iron and scrap metal dealers; importers and exporters; dealers in used structural steel; operators of hydraulic presses; and railway purchasing agents.

FASTENERS DATA BOOK. 208 pages, 8 1/2 by 11 inches. Published by the Industrial Fasteners Institute, 3648 Euclid Ave., Cleveland 15, Ohio. Price, $3.75.

This compilation of data on the design and application of industrial fasteners, such as bolts, nuts, rivets, screws, and special headed and threaded products, has been reprinted from *Fasteners*, a publication issued by the Industrial Fasteners Institute (formerly the American Institute of Bolt, Nut, and Rivet Manufacturers). The articles reprinted have been chosen as the result of a great number of requests for the particular information contained in them.

Some of the subjects dealt with in this book are as follows: Clamping Force; How Tight Should a Bolt Be?; Screw Threads for High-Temperature Bolting; Torque; Tapping Screws; Bolting for Pipe Flanges and Pressure Vessels; Testing Bolts for Strength and Ductility; Repeated Loads on Riveted Joints; Rivets and Bolts in Structural Design; Cold-Forged Inserts; Lock-Nuts; Design Factors for Riveted Fasteners; and Strength of Large Bolts. Much additional matter useful in the application of fasteners is included.

PRESSWORKING OF METALS. By C. W. Hinman. 551 pages, 6 by 9 inches. Published by the McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y. Price, $8.50.

The speed and scope of our current rearmament program emphasize the need for the most modern metal-working techniques in the nation's defense industries. To help meet this need, a second edition of this book on the design of press tools and the fabrication of metals in power presses has been brought out. The text has been revised and expanded to cover the rapid development of new power presses, equipment, and accessories, as well as new press tools.

Nearly 1000 press tool designs, types of presses, attachments, and tooling equipment, together with a description of how to use them in everyday die-engineering practice, are presented in this edition. Basic tool designs that may be adapted to a wide variety of press-work problems are described, and information is given on how to select the right type of press for any particular job. Techniques are given for handling many difficult drawing and forming jobs.

TOOL ENGINEERING. By Lawrence E. Doyle. 499 pages, 5 3/4 by 8 1/2 inches. Published by Prentice-Hall, Inc., 70 Fifth Ave., New York 11, N. Y. Price, $6.35.

The important procedures in planning and tooling for production and the reasons for these procedures are clearly set forth in this book. With the information given, the reader should be able to solve tool engineering problems by analytical methods based upon engineering fundamentals. The book was written for use as a text in a tool engineering course.

An idea of the treatment will be gained from the following list of chapter headings: The Nature and Scope of Tool Engineering; Principles of Economics; Problems of Economy; Planning and Tooling for Economy; Principles of Estimating; Short-Cuts and Variations in Estimating; Manufacturing Principles Applicable to Process and Tool Planning; Planning Practices; Principles of Dimensioning; Determination of the Requirements and Conditions of a Process; Determining the Operations of a Process; Determining the Sequence of Operations of a Process; Principles of Locating; Tool Design; Clamping Principles; and Dimensional Analysis.

HOW TO RUN A LATHE (Fiftieth Edition). 128 pages, 8 by 5 1/4 inches. Published by the South Bend Lathe Works, South Bend, Ind. Price, paper-bound, 25 cents; fabrikoid binding, $1.

In 1907, one year after the establishment of the South Bend Lathe Works, the first edition of this book was published. With the increasing experience and knowledge of the company, each successive issue has grown. For the last forty-four years this book has served as a reference source for the skilled machinist and as a text-book for students.

The subjects covered include correct installation and leveling of the lathe; grinding cutter bits; turning, boring, thread cutting, taper turning, drilling, reaming, and tapping; machinability ratings; cutting speeds for various kinds of steels; standard tolerances for various classes of fits; allowances for finish-turning, filing, polishing, grinding, reaming, lapping, and honing; and tooling dimensions for South Bend lathes.